#### November 16, 1992, Vol. 26, No. 46, 202 Pages, \$2/Copy, \$48/Year COMPUTERWORLD



Mail-monre 486 PC

OVERALL SYSTEM

Orr Surrey Summers

#### IBM gives OS/2 unit more freedom

By Rosemary Cafasso and Christopher Lindouist WHITE PLAINS N Y

IBM confirmed last week that it is shaping its desktop operating system business into a more independent unit as part of an onspins plan to make its PC businesses more

commetitive PAGE 160 The company could also security ally spin off the business as a sens. rate company much as it did with its desktop hardware business two mooths ago, although no specific plan is now in place, a company

spokesman said 8.5 information systems executives said they would welcome a more fo-8.1 resert effort from HW's deskton husiness and believe it could bring 8 1 about better service and quicker

IBM, page 12

By Michael Fitzgerald

The IBM PC Co. and Com a The IBM PC Co. and Compase Computer Corp. have been asking users to hop on a low-price band-wagon, but as the crucial fall buy-ing season heats up, the two gi-ants of corporate PC sales have quickly discovered that a high de-mand for seats is far exceeding

This is a disaster for us - cust ers want to manage their MIS instal-lations and roll out networks sales force automation projects, etc., and they're furious over this," said William Tauscher, chairman and chief executive officer of ComputerLand

Corp. in Pleasanton, Calif. Success, it seems, can be hard to handle. The shortages result from a combination of record demand and an inability to get extra parts

By Flischoth Horwitt

PCs in short supply

seconds supply for much of its Personal System/2 line from the Server 295 on down, and there is probably a two-mouth backlog for its ThinkPad porta-

ble line. It also appears COMPEN to be on the brink of breaking its promise to meet demand for its PS/Alabue numerous industry ob

IBM has said it initially delayed Value-Point's launch to make sure it would not repeat Compaq's continuing supply problems, deliv-ering 14,000 low-end ValuePoints to

dealers the week before it an-Yet while IBM officials said it is on schedule so far, several well-placed SDLC routing snags users

Glitches cause some to find networking workarounds

it can fill orders for the 486DX mod els, though that will not be clear until later this mouth when the machines are sched uled to ship.
And callers to IBM's

800 line for ValuePoint systems are experi encing a near-two onth wait for new

alor customers con tacted said they were being told by IBM reps to expect sim llar delays. "We've been told that [ValuePoint] will probably not be available in quantity for six weeks." said Richard E. Nelson Jr., vice pres

ident of agency systems at New York Supply, page 12

Aiming high

#### Microsoft pursues IS

What does

Microsoft need

strategic ally

By Christopher Lindquist

Abetted by an industry shift to client/server computing. Microsoft Corp. has speot the past two years attempting to shed its skip as a shrinkwrapped vendor. Since it re-

leased Windows 3.0. the commony has been striving to position itself as a software sun plice canable of outab. lishing strategic, longterm relationships on multiple levels with large, corporate information systems de-

See page 20 partments Microsoft has rolled out a number of changes designed to boister that effort, including vastly improved service and support, more flexible licensing policies, a separate coosulting arm and an eatire division devoted to corporate customers

the least among these burdles will be the issue of trust. Microsoft has a reputation among meets and developers for constantly twenking delivery dates and product plans Microsoft, page 20

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**DB24** 

firmed that it will expose yet anothor stratum this January in its bid to espture IS fealty, including simpli-fied purchasing and licensing options and more robust support (are story page 20). forts, interviews with 12 IS managers and a

separate poll taken by the CW Database Divition last week indicated the microcomputer software giant may face more than a few obstacles in its bid to achieve first-class citi-

Bad user karma is overwhelming Cisco Systems. inc's current dogma that a router can handle Systems Network Architecture with the same ease with which it directs local-area network mance and lost 18th SNA sessions are cousing early implementers of Cisco and other router vendors' Synchronous Data Link Control pred-

ucts to rethink their internetworking strategic They are also causing users to question whether Cisco has the expertise to develop its own SDLC products rather than farming them out to an SDLC expert, as Wellfleet Cor Inc. and Proteon, Inc. are doing.

SDLC specialists such as Sync Research and Netlink Corp. have consistently provided more options and better throughput than the router vendors, user sources said. Questions on its SDLC credibility co

time, given that Cisco has just lunnehed an all-out effort to get its Advanced Peer-to-Peer Internesworking protocol accepted as an industry stan dard for routing SNA traffic. Indeed, more than one user comthinking its strategy of using a router, which was

originally designed to handle LAN-to-LAN traffs SDLC. page 7

#### There's no generation gap here



#### Executive Briefing

#### A comprehensive guide to the week's news

#### INDUSTRY

Microsoft aims to cozy up to large customers by putting a new face on revamped strategies. Prices 1, 20

IBM cuts the cord on its desktop operating system business. Prop. I

#### MANAGEMENT

Surprisingly few major differences in attitudes exist between the old guard and young turks in IS. An exclusive Computerworld survey shows broad agreement on a variety of issues. Prog 148

#### UTSOURCING

McCaw Cellular Communications will let expire an outsourcing deal with Cincinnati Bell Information Systems in favor of a real-time, in-house Unix system aimed at Improving customer support and billing. Page 10

Outsourcing at HUO surpasses expectations, but efforts to shore up floancial applications in the wake of the 1989 scandals are moving slowly. Prace 16

#### .....

It would be possible to run Comdex by computer, according to industry observer Esther Dyson. But that would remove most of the stiraction. Besides, the possibility of a big payoff is what keeps people coming. Prigr 32

Comdex kicks off the quest for productivity with multimedla, next-generation portables and work-group computing. Also on tap are a host of products in the sectors of PCMCIA, wireless technology, multiprocessing, highend servers and portable computing. Pure J.

Microsoft will unveil the first pieces of its database strutegy, including the Access database, a GUI-based development environment and a means to conocet with thirdparty PC databases, rolled into one. Page 12

Lotus will unveil a 32-bit version of CC:Mail for OS/22.0. Page 14. The company will also show improv for Windows and announce plans to ship it early next year. Page 14

An old-fashioned shootout at high noon is expected as IBM, Borland, Novell and WordPerfect announce a client/server a pipication interface for dutubases to counter Microsoft is widely accepted Open Database Connectivity, API. Prue 12

#### ENTERPRISE NETWORKS

Early implementations of IBM SDLC traffic on routers has run into glitches, causing users to rethink that stratege Page 1

IBM plans to deliver frame-relay technology by mid-1983 and ATM products within a few years, but it won't offer SMDS. Page 90

Meanwhile, ATM plans are coming together for router vendors Wellfleet and Cisco. Prope 80

MCI proposes the FCC license spectrum for building wireless personal communications networks to teams of companies, which can quickly construct more far-reaching networks than individual licensees. Page 10 PC hardware

Too musts customers have hopped on the sweet set

set not by IBM. Apple and Compact, who find they can't get their product face, rolling because demand in not house, Paper 1.

When it comes to PC's productivity is beside their and season of the productivity and the productivity are really all about my glannour and previously power.

They can make you seen more impressive than you are, and they goe you access to just about myone or anything thyp 33

Soldifications to IV power supplies could eliminate some of the feed for UPs. Thus 11.

 some of the need for UPSs. Page 11
 Conversions to IBWs newest DR2 release go well, provided manuscrance recurrent Page 113

Technology surveys

# Price wars may promise that you can get cheap \$46

It's but specified in the Best Bay cutative are fully chanining your applications load to decembine what system you really need Indomensor writing detailed bid specileations. Inspecifing each candidate system to check quality and be conglisted volume preclaims for even better prices. Product Spoilight on 142 It's provides the

practical tips you need Page 1532

Gateway 2009 196 PC users give their applicate the highest satisfaction ratings besting Dell, ANI, Company and IBM, Proc 189

Client/server

Diffs from that moving to cheat/server earls sive you as much as MP- on hardware. But it is about rue that habou training, it becommans within said other custs can rut own at those sain up. Prop. 100.

■ Clears server by study at 1 med Airlines, (ITE, Teoncy, ITT Hardford Insurance and Harvard Cammanity Health Plan are despitag about with downships plans, but they admit that it kinn! I become easy passage. Two key hong oper-training and the lack of tousible for especity planning, network massagement and predicting performance, how the

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client server Page 1

Downsizing

II splanned 5:000 person work-lorer reduction at The
Travelers resident shorply into the firm's professional

I reactive restance a surpsy, into the firm's professional By makes—but the importance of Bi in the firm's busitees may is going nowhere but up Pape III

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LARS

Match for a major impact on peer to peer LAN vendors from Windows for Work groups. 49

Unix

Sunariches Solans a sattle
commercial desiring manual by



#### Does your job give you nightmares? See page 177

nancial problems, a Cleveland law firm is looking for ways to make use of its 40 mink while planning for a future based on PC LANs. Prepr 52

Software pricing

■ Computer Associates continues to move away from tiered printing introducing simplex more flexible enterprise printing models for users of its mainframe, Unix and Discounters.

Large systems

• Ithachi Data Systems C2O John Stoedke plans to montrin HDS steady everse in the choppy maters of BMS-compatible multiframe morieting. Smedic says HDS will silect to its plant of growing at about 12% n year. Plans 107.

\*\*\* EMC is ready to ship a mainframe storage system that observers any susperforms BM's comparable of ferings and bear Storage Tel to market. Proc 8

Midrange systems

10% thatily amorage a range of Alpha platforms with a staggered shipment schedule. The company also istrodress some honogrown substruct, promising thicktrodress some honogrown substruct, promising thickpartypackage studdless shortly, and for those still statiing, the first conditions that the fluid pieces of 1007 net/OSI are slated in roll out by mid-1001, Page 47 all thirtings with fluinty runs is no other torontosis as if they were ATSI has a both and ma a fault-olerenta hose.

■ Dallace Fort Worth Airport has a Pyramid-based treinnelogy plan to help it expand into what may be the world's langest airport by the year 2006, but a number of integration challenges lie in the way Page 120

Databases

Subman shows the 1999 seeded financial and the first

er some suggestions for ng work pressures, 1979

largely start and stop, say

give pricing or shipment duites. Uners cogorly most the products. Page 13 B-Oracle's Date 447 for electric-ever upplications is intended to spor the developneed of more Windows programs than access Oracle database next; Page 37

conce of side flattures for implalation and administration, ag III Sun good after the data ontion and the side of the side of the side of the side of the ties and the databage markets, while sell leeps in leeping markets, while sell leeps in Side professment and origin in Viging professment and soft lead in goat of an edge in Viging professment and soft lead in goat of an administration of the side of the side of the side of the markets of the side of th

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#### Sun, HP rev workstation engines

Sun takes on enterprise computing for commercial sites, while HP secures technical markets

By Maryfrag Johnson

u Pitching their workstation wares to markedly different cus-tomers, Sun Microsystems, Inc. and Heurist-Packard Co. last week unveiled a lineup of sys-bens, software and services de-signed to appeal to both commer-

Sun made a beeline for commercial sites with its mainframe-class SPARCounter 2000 multiprocessors and SUADColnecia polos sweketa tions while HP held firmly to its leading position in raw CPU and dels of the HP 9000 Series 700

"Sun is positioning itself as an enterprise computing vendor, and there is a shift of engineering and technical markets toward HD" said Cohert Herwick, an analyst at Ham-

brecht & Quist, Inc. in San Francis-Sun said it homes to displace DCs

from commercial desktops, and HP is concentrating on the midrange and high-and a valentation were

#### Mix and match Citibank NA's treasury risk man

agreement division is expanding use of both vendors' unrivatation lines according to John Martino, vice president of software development We bought HP machines for our district because it suttefled a need for performance." Martino said. Sun has satisfied other needs in other parts of the corporation From the vantage point of one of

Wells Pargo Bank in San Panadasa the street bearing last week "reflects the kind of things un've been arking for" said Ros appeal of the new Series 700 models

Wholesale Services at the bank Along with the low-end cole SPARCelassic and the data crotes contain Con introduced the CDADY. station I.X an accelerated graphics workstation priced at \$7,995 that is slated to be evallable next month

The vendor also set up Sunlate gration Services to assist customers in planning technology migrations and it will offer its "SunService 2000" support package for SPARCmonths 2000 months

Yet Sun's strategy of pushing the SPARCelassic as a replacement for high-end PCs may be anchored more in wishful thinking than reali ty, some users and analysts suggest ed. They noted how market research shows no signs of high-end

PC users migrating to Unix. Conttnii offect On the MP side, the choos technical Vital satisfies Macusers

is likely to solidify its reputation in reial markets as well "HP's technical improvements coom to coincide with a number of our requirements," said Ed Reedy manager of information manage

ment technologies at GTE Tele-With its new Procision Architecture-RISC 7100 chip, HP eranked up the clock rate of the new systems by 50% and dropped the price of its en try-level color workstation by 26%. HP improved its three-dimension

al graphics performance and is of fering 3D solids workstations priced Also new is the HP MPower soft ware, a single product that inte-grates multimedia capabilities into the HP Visual User Environment. Available in February 1993, it is priced at \$405 per ellent and \$1 405 for server software

PA-RISC.7100 chip. Systems are nary and are 4from \$4,995 my scale diskles

to \$22 our fore cole h-end Unix ser Pricing begins at Sos non, with two- to eight-way processor curtame moditel mid-1001.

workstation on the market today, is priced at \$3,995 when pur

ent/server plan,

firm's first dedicated Macintosh server, is

ing the first half of

never posi-

expected to ship di

#### CW revamps design. production system

research and technology planning at Martin

Apple Computer Inc. contomory stamped for sion in Orlando, Fla. information about how to handle the wrenching job of moving to a elient/server environment are eating up Apavoided - integrating ple's Vital document. desktop computers in an internally develto an enterprisewide

need design for into strating the Masintout into mixed bardware and software configu-Fight months after

its release, Virtually Integrated Technical Architecture Liferarie (Vital) was on the relade and line of many of the several hundred attendees at last week's MaciS aser

Much to consider Macintosh users said they are digesting the 1.000-page document in two ways: in nibbles. series of bern

We're using the smornishord proach, taking a little bit here and a little bit there, to help us get through the tough snots," said Craig Ellerbrock, director of

something they'd rath Marietta Corp.'s information services divi-Others see Vital as welcome ammunition sue they long have

Expects one such a plan is critical "Infrastructure is the name of the game," said John Zachman, president of Zachman Internation al, Inc., a consulting firm in La Canada.

Calif "A solid well-de-

redevelop systems al ready in place. Rather. it says that dissimilar bridged at the deskton using application programming interfaces available in Apple's

Although Apple's high-end Quadra Macintosh ecrtainly had the now er to work as a server and Data Acress Man tioned it as such and

added the functionality expected in a gen eral-ourpose machine. As a result, users rarely considered the Quadra as a server The Quadra is nice, but what they need to do is set rid of some of the frills and give us a vice with high I/O that

we can dedicate to just functions said Brian Comaes manager of the infor-mation center at DHI wood City, Calif.

Analysts said the sheence of a dedicated server has hart Apple's corporate sales adding that until Apple gets a product out, it risks falling further behind companies such as IRM. Dirital Foninment Corp. and Com-

ents of Apple's cl

client/server design. " A lot of follow house is the only way manbeen seared off about agement has to change mind to a client/server their entire emission setup because there was no one there to show them how," said

Vital suggests relacing traditional David Lustie, manager host-down methods of of technical services at integrating disparate Bose Corp. in Framingham, Mass, "Apthat begins at the desk ple is forcing maro top. It also does not re-

will grease Apple s drive to place the Mac-intosh Into corporations. Rather than having to buy and huild new systems, an ordestration can make ex isting systems work

# SYBASE

# 90 LINES OF COMPLEX CODE

# **ORACLE7**

#### 3 LINES OF INDUSTRY STANDARD SOL

SELECT NY\_QTY, LA\_QTY FROM NY\_PARTS, LA\_PARTS WHERE NY\_PARTNO = LA\_PARTNO;

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or ny\_parts is the parts master; need country for sequential comparison with ia\_parts to semulate a distributed join '/

CREATE TABLE selectors

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of create temporary table for sequential build from first two temp tables "7. CREATE TABLE ##ilparted." (partno charff) NULL., inj., dly int null, seq inf

/\* build sequence numbers for each ny row \*/
while Scounter 1> Scot
begin
select Scounter = Scounter + 1

/\* populate temp table with ny parts and quantities insert into seliparts1 (partno, ny\_qty) select ny\_parts.partno, ny\_parts.qty from ny\_parts

\*Program code independently written and tested.

These two programs do exactly the same thing: retrieve data from multiple servers. Oracle does it with a single 3 line industry standard SQL query. Sybase requires 90 lines of complex code. If productivity is important to you, call 1-800-633-1071 Ext. 8185 for a free copy of "Client/Server Database: Getting it Right" by programmer productivity expert Steve Schur.

ORACLE

#### News Shorts

#### Runtagh is new GE CIO

Hellene Runtagh, president of Rockville, Md-based General Electric Information Services (GEIS), bus reniaced General Electric Corp. Chief information Officer Edward Skike. Rentagh will continue to manage GEIS as well as head GE's worldwide information systems operations. Skiko took the helm of GE's real estate, contruction, distribution and corporate incilities divisions. be will also continue to head up the firm's data centers. Meanwhile, GE agreed in sell off its consulting and contract programming group. GF Consulting Services, to

Aicrosoft, Intel go video Microsoft Corp. and latel Corp. are making movies to-gether. Microsoft last week unveiled Video for Windows a software system for creating, editing and playing back digital video. The \$199 product will include software for ling and creating videos as well as a CD-ROM of video clips for incorporation into presentations, intel anacounced its Indeo video technology, which it said per-mits "scalable performance" of digital video by allowing video quality to improve as the speed of hardware imsawhile, Apple Computer, Inc. continued its move to compete in the Windows marketplace with a version of its QuiekTime multimedia technology for

#### b cuts at BellSouth

ath Corp. appropried that it will alosh 5 000 lobe by 1996 because the network service industry "has become a competitive free-for-all." forcing the regulated phone company to streamline operations. A spoke-man sisted the staff reductions "will not affect the pace of intion or service rollout

#### New life for Ethernet?

re than 200 participants - 10 times the normal atshowed up for last week's fastitute of Flortrical and Electronies Engineers, inc. 802.3 meeting on standardizing (00M bit/sec. Eibernet. The committee is examining proposals by several vendors that hope to stave off competitive threats by non-Ethernet technologies. A follow-up meeting is planned for January.

#### nformix pulls trigger

Informix Software, Inc. last week announced availability of Version 5.01, a maintenance version of its Informix e relational database that supports database triggers. The triggers, previously expected sometime in 1983, are fired off by client/server applications during inserts, deletes or apdates to the se-

#### Candle Corp. boosts database tools Candle Corp. enhanced its software tools designed to optimize performance of IBM's DB2 database manage-

ment system, ft enhanced its DB/Explain tool for conecting the systex of programmers' SQL sucries and Omegamon II for DB2, which provides DB2 performance

SHORT TAKES NCR Corp. cut prices on its PCs and workstations, including a 15.5% price reduction on the NCR 3170 notebook computer and a 30% cut in the price of the fatel 1484-based 3321 PC. . Epoch Systems, fac-signed an agreement with Sun Microsystems Com-puter Corp. (SMCC) and Storage Technology Corp. to market Epoch's network date management software for SMCC's SPARCeenter 2000 server Magazine in Japan ranked Nihon Unisys Ltd. first in 16 of 17 entegories of a mainframe customer satisfaction

News shorts, page 16

#### CA sheds tiered pricing

#### Vendor's flat-fee approach based on MIPS, total number of sites

Computer Associates International the last week introduced new cotor prisewide pricing models that do away with the unpopular main frame tiered-pricing approach and greatly lower vite pertrictions. An alysts said the enterprise licensing schemes will be particularly attractive to large information systems

shone with multiple sites The new scheme uses a formula that combines mainframe millions of instructions per second (MIPS) with the total number of eustone efter that might use the coffee or to

come up with a single enterprisewide price (see chart below) The new policies are an extension of an outerprise pricing program CA introduced last April that charges fees based on the total capacity of

the hardware on which the software runs, instead of on the size or numers of CPI's ICW April 200 CA Chairman Charles Wang said the new format removes geographical restrictions on the use of software throughout the user's enter-

prise, "Sites and CPUs are replayed by aggregate MIPS," he said. sers and analysts had mixed reactions to the initiatives M. Lewis

How it works

CA's Enterprise Pricing charges on the basis of aggregate MIPS across multiple sites rather than

Example: Two MVS sites running CA-ACF2

CPU

Site 1 IBM 3090-600

Site 2 IBM 3090-2008

Tlered pricing fee

Enterprise license fer (based on 150 MIPS

shops will shy away from the program because it requires them to adapt CA's Total Client Core prostram, an on-line support progra said Total Client Care allows CA to "disable" a eustomer's software

code if the vendor believes the software is being used improperly on unlinement CDI to However, CA Senior Vice Presideat Mark Combs said CA cannol disable software from hondenan less and authorizer under the new

plan should not have to worry about censing violations because software can be freely used across the

#### MIPS requiremen Under enterprise pricing, users will

be able to pay a flat anoual fee to run software throughout the est prise depending on a predeter mined number of MIDS with a mini mum of 120 MIPS for IRM MVS-based products and 60 MIPS for VSE and VM software. CA will continue to offer its cu

rent tiered licenses and provide room for growth for users who want to migrate to the enterprise plan said Sanjay Kumar, CA's senior president of planning

CA also revised its Unix and PC product licenses and mainten Temares, chief information officer policies. Under enterprise licensing

Under CA's enter-

prise licensing pro-gram for desktop products england are allowed to expand the number of PCs throughout their enterprise by

10% to 15% per year without having to pay additional soft

ware licensing charges.

\$134,424

at the University of Mismi, said the new ticensing scheme should enable the university to add new software products to its cache, including CA's TopSecret security software, which Temares said the school was unable afford previously

#### ultiple benefits

Mike Egan, an analyst at The Meta Group in Morgan Hill, Calif., served that some user shops will benefit from the expanded enterprise licensing structure, especially those

that run the same software packages across multiple sites. pricing structure would be widely However, Egan said, many IS

for desktop products. CA eus can license desktop software based on the total number of PCs in the en-

For exam pany with 250 PCs running CA-Su perProject would pay an annual fed of \$11,760 - or \$46.80 per PC compared with a list price of \$895 per package. CA also gave its CA-Unicenter for Unix customers a

pricing option based on a Transaction Processing Preformance Cour CA officials said they boned ti



Legent Corp., which are CA's most direct competitors in data center software, said they have no plans to change their existing licensing poli-

Under its new maintenance agreements, CA is allowing its cuslooners to pay a fixed cost for main tenance under one-, three- and five-The University of Miami expects

to save \$43,000 over five years up der the fixed-cost agreement it designed with CA two munits ago, acconding to Tempres

Paying atten Some usert said the pricing initia-

tives reflect CA's increasing responsiveness to its installed base. The meeneral "shows me that they are listening to the meets of their customer base in terms of flexibility and practicability, given the severe economic times we're in." said Ron Landau, vice president of MIS at Industries, Inc., a Charlotte. N.C., home furnishings manufactur-

to have arrived too late for one cus-

ming manager at Beeton Dickin scular Access in Sandy, Utah said his company abandoned the use of its CA-Datacom/DB and UCC/1 products when the firm wasted from an IBM MVS mainsase environment to an Applica-

We were not thrilled with their pricing policies on the MVS-based plications so we didn't even con er their products on the AS/400 de," said Stout, whose company eventually purchased AS/400-be cations from Data 3 Systems.

#### SDLC routing snags users

CONTINUED FROM PAGE 1

as a stateway that converts the SDLC cost. put of IBM devices into Logical Link Control — a type of parket that was designed to travel over LANs. The following are a few cases in point:

\*After finding some serious bugs in a betatest version of Cisco's SDLC-to-LLC convarion product Pfices les transacte CV & vendor Syne Research Corn. Pfiger also could not justify the cost of routers, so it implemented source-router bridges from Andrew Corp. to handle the LAN-to-LAN

\*The Travelers Corp. has backed off from initial plans to use Cisco boxes, primarily because they lacked a way to address Net BIOS devices so as to stop the broadcast storms that were cating up bandwidth. Travelers is now testing IBM and Cross-Comm Corp. rooters

\*Holiday Inn Worldwide found that SNA sessions going over its Proteon routers tended to disappear when a line outage occurred or when other types of LAN traffic crowded out the SNA, said George Morales, a network analyst. The botel chain is in the process of migrating "an extension sion Control SDLC" network to Trunum Protocol/internet Protocol (TCP/IP),
which provides dynamic transcarrent rerouting of residens

Bancomer is one firm that is entrusting its SDLC to Cisco. The Mexican financial services company last week announced a huge contract under which Cisco routers will link some 10,000 nodes. However, the bank said it will have to use Sync Research boxes in combination with Cisco routers until Cisco delivers promised support of older SDLC protocols, such as half duplex. n emokaeman caid

Cisco will deliver that support, along with other enhancements, within the next six to eight months, a company spokesman said. Cisco just started shipping a prioritization feature that is said to prevent other LAN traffic from bumping off SNA sessions, the spokesman added. Proteon will be introducing a similar product next month, the commany said

#### Users await SDLC fix Several users said that they expect Cisco

to remedy many of its SDLC glitches, but they still question the vendor's stratesy of rolling its own SNA software and putting both SNA and LAN traffic in the same box. "I'm confident that Cisco will set its act

together, but it is putting it all in one basket," said Vinnie Costa, a data communi-cutions manager at Pfizer, "We feel comfortable putting SNA-to-LLC conversion in one bex, and ILAN protocols such as TCPIP in another, for economic, performance and network management rea-

Recent tests by InterLab back up these concerns. An independent testing and con sulting company in Seagirt, N.J., InterLab tested SDLC-to-LLC conversion software running on Cisco's M65040-based MGS router, as well as products from three SNA vendors; Sync Research, Netlink and Ring

Throughput on the Cisco box was apatchy 5.5K bit/sec., while the SNA products had a throughput of about 8.2K bit/sec., according to InterLab President Kevin Tolly, "Given that the test was not enough to overload anyone's box. [Cisco's performance sbortcomings] must

We're continuously improving the code; we're not suggesting the first out in the best," the Cisco spokesman said. Several users also operationed Cisco's decision to support IBM's NetView in only a limited fashion through a Simple Net-

be attributable to immature code," he said.

work Management Protocol inter-They pointed out that information systems menagers can go on managing SNA traffic on Sync Research and Netlink boxes, just no there observe managed IDM observes one trollers, via NetView

Robin Layland, manager of SNA soft-ware engineering at Traveters, spoke for many when he suggested that routers have not been around long enough to achie the high level of reliability that SNA nac



USER

**EXPERIENCES** 



#### EMC ups mainframe storage ante

EMC Corp. unveiled a new mainframe stor are system last week, just one day after Storage Technology Corp. was forced to agnounce that shipment of its rival leeberg has been delayed for the fourth time. EMC's Symmetrix 5500 which is curseveral key features touted in loeberg aredundant arrays of incomencies disks (PAID) submittee Plus the FMC anadust is said to outperfom IBM's latest high-end offerings. That is turning users' beads. mmetrix 5500 — due out first-unarter 1963 — faces a receptive user audience. General Accident Insurance Company of

America in Philadelphia, plans to replace 1800 bytes of IBM storage systems with a Symmetric 5500 it has been tested for some eral weeks. The EMC system is smaller than the comparable IBM offering, requires less cooling and manages data better, according to Alan Pomerantz, vice president of technical services "I got nothing from IBM that I couldn't

have from EMC for less imoney)." Pomerantz said. The insurer figures it will save \$2.50 per megabyte of storage space, plus the cost of adding air conditioning and other data center accommodations required by IBM's comparable product, the 3900

at International De-

ta Corp. in Framingham, Mass, The

disk errors be

resched These fee-

turner eten EMC increased leverage in

large accounts such as brokerage firms

ta availability.

EMC is now able to compete serioush Dense disk in the very high-end The Suprestrie Vellante, an analysi

LMC's subsyste -

product can perform several RAID-style 2406 hytes functions, such as disk mirroring and Channels: 16 par sparing. altel channels, up which automatically to 32 native Escon reallocates data to a channels. snare disk should a predefined level of Emulation: IBM

3990/3390 OF 3880/3380. Sherrant Warrence Two

and botels, which reouire continuous de-Price: \$864,000 Pershing, Inc., a to \$2.8 million. brokerson firm in Jersey City, N.J., is a Availability: Firstnure IBM shop, runmunter 1002

ning an IBM Enter System/9000 Model 200 mainframe and an all-IRM storage setup. Symmetrix 5500's functionality and price are interesting, said Bruce Bordonaro, systems software manager.

Bordonaro said be wanted to price-shop storage systems to "at least keep IBM on their toes." He acknowledged, though, that Pershing likes to stick with the tried and true and may not want to take a chance on EMC, which is just building a reputation in

Storage Tek attributed snags in delivering its RAID offering to continuing software integration problems (see chart), leehere first appounced in January will not be not until late 1993. As a result, the comnamy's stock took a nesting tumbling \$6.13 last Tuesday to \$23.63. It later recovered 5% points to close late last week at \$29.50

#### Melting Icaberg

Though Storage Tek was the first to announce a mainframe RAID, its lead has evaporated as the product's delivery schedule has slipped. Jamaner loaberg announced, beta testing to begin by second quarter, production to follow that this year.

April: External beta resting pushed back, which was the constitution of the second production of the seco

to third-quarter 1992. Storage Tek main tains it will sell \$40 million worth of Ice berg by year's end. May: Production ships

✓ Quality Of Technical Support

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#### Layoffs may impact Travelers IS

#### Continuing cutbacks won't affect projects that have immediate payback

Rv Nell Marrolis SISTERNS COM

Plans to slash 5,000 jobs at The Travelers Corp. during the next two years could take a large chunk out of the insurance giant's 3,213-member information systems ranks, according to two sources highly placed in the company.

But Travelers executives and industry observ-

ors said the firm is even more committed to boost-

Earlier this fall, the quest for efficiencies as mits in the face of industrywide competi tion and nationwide recession led \$11.4 million Travelers to put 3.500 jobs on the chopping block Two weeks ago, it upped that number by 1,500.

Travelers, which has been buttling effects of

the lingering nationwide recession and a stressed insurance market for months, anunced the new round of cuts as it posted its ond-ever quarterly loss. However, Chairman loss nor an impending equity alliance with New York-based conglomerate Primerica, Inc.

1989 and year-end

proximate 9.6% work-force reduction. Som an estimated 27 200 empire

\*\* 400 Two rounds of law

company in the 15 van-guard, Travelers runs on \$127 million worth of computers, not in

According to one IS employee who requested anonymits, the 1,500-employee reduction is largely simed at the corporate staff, which ines the lico's share of the firm's \$213 IS professionals. A Travelers IS executive who also asked not to

be identified speculated that "data center, tele communications and workgroup support people are mingto be highly affected."

Reiterating Travelors' policy of refusing to comment on rumor and speculation, a company spokesman said that it is "way, way too early to tell" what toll the cuts will take on any specific

en within the firm But wherever the ax falls, "IS initi real payback to the company won't be altered. Chief Information Officer Lawrence Bacon said. That could include most IS projects currently afoot at Travelers, he added, because "we've made sure over the past counte of years that exerything we're doing is specifically aligned to a

ess goal Theoretically, attractive technologies with diste business payback have been quietly shelved. Bacon said. They include the following

\*Pilot imaging projects in the managed-care are na and pensions. "There are a great number of things we need to do before we can get the most out of imaging," Bacon said, High on the list for further exploration are advances in electronic data interchange and increased reliance on rapid

application development methodology.

\*Expert-systems technology. \*It's intere Bacon said, 'but we ended up saying, 'Hey, wait a second - who's uning this stuff



m its projects to a business anal

Ann Purr, manager of information manext resources at Atlanta-based insurance in-lustry association Loma, noted that Travelers an long been hailed as a firm in the IS vanguard. erever the coming layoffs occur, she said, "I'd he surprised if the company's emphasis on IT di-

#### McCaw to replace outsourced hosts with Next-supplied servers, software

By Mark Halore SISSLAND WASH

Just one week after receiving a se of a \$3.8 billion equity infoon from AT&T, McCaw Cellular sications disclosed week that it will replace its outsourced mainframes with in-house Unix servers tied to some 3,000 desktops running Next, Inc.'s oper-

The move marks an effort by the nation's largest cellular carrier to improve oustomer support, billing and part by moving from a slow batch process. Nonetheless, McCaw last mouth renewed its Cincinnati Bell Inforon Systems, Inc.

(CBIS) mainframe collretroactive three-year pact that extends through 1984, giving the company time to bring the in-house sys-

McCow Chief Information Offices Insvar Petursson said he may retain CBIS for software development and invoice processing but will put raw

singon the Unix system. McCow has entired object-ortented development bein from Andersea Consulting as it rendies a real-time scheme of Unix server and databases at some 60 McCew

service representatives will tie into the system through Next's NextSter operating system running on 486 PCs or Next wasketstlens, second ing to Peturseen

Petursson said McCaw has been ed with the CBES relationship. and CBIS may participate in developing billing software for the forthing McCaw system, called Axys.

McCaw may also tap CBIS for selective outsourcing tasks, such as printing customer hills McCawle donien ealls for installing Unix servers loaded with rates and billing data at its 40 call-switching altes The servers would tie directly to the

switches and keep upto-the-minute accounts of customer activity. These servers would also tie into another 20 Unix servers

stalled at McCaw business offices to provide instant undates of envioner records and immediate response to McCaw plans to implement Axys

in two stages. The customer date. bases will been to come on-line in January and the rates and billion systems will go live in 1994. Peturs-

expenditures for the Axys system.

By Joanie M. Wexler

MCI Communications Corp. last week propthat the Federal Communications Con (PCC) allocate radio spectrum for building nationwide, wireless personal communicatio

works (DCN) to concertie nother then to indust ualfirm MCI's filing, with an eye toward wireless PCN service by early 1994, rounded out moves by roughly 150 companies that have responded to the FCC with advice on how the industry should build next-morra-

tion, wireless voice/data octu supporting nonadic users. MCT's proposal includes allocating a spectrum liceose in the 2-GHz frequenes range to each of three carrier teams. PCNs will eventually allow users with specially designed voice/data devices to roam the globe with one personal "phone number." should allow firms to better leve age far-flung expertise and to mini-

mize phone service costs by elimi nating the installation of multiple lines for However, they said, the service's appeal hin on the dynamics of how issues such as tariff costs

and the breadth of network reach play out "The key is bow these networks will be reg lated, what kind of tariffs we're looking at and whether they will really be nationwide, rathe than focused on major metropolitan areas, Robert H. Hamilton, president of the Tele-Communicatings Association (TCA) user group Many members of TCA are not necess

headquartered in or have facilities in metropoli Wireless packet data petworks from RAM Mohile Data and Ardis, a joint venture between IBM and Motoroia, Inc., "are limited in scope as to where subscribers can receive signals," agreed hillip Evans, director of telecommunications at

MCI makes wireless pitch

Systems Corp. in Dallas. "But this is partly a resource problem that said be addressed by spreading capital investcuts" across several consortia, be said. Jane Videtich, president of user group Interns

tional Communications Association, said, "I don't think one company should have a lock on the available spectrum. This works against com-

petitors Sprint Corp. and AT&T do not support the consortia approach. AT&T suggested the PCC allocate 20 MHz of spectrum to five especiators in each nationwide market rather than to the three li-

censees it is considering. Sprint has aded the FCC allocate at least 30 MHz per licease to three licensees and allow non minority interests of up to 30% Such Issues must be resolved be

fore users can think ahead to the po-tial benefits: A PCN should allow for example a company to tap into talent throughout in its personnel base. It gives you that freedom of m nt and accessibility to the people who have the knowledge necessary to make quick, informed risions," Evans said.

Steve Zecols, vice president of perleations services at MCI, said it will take \$5 on to \$10 hillion to build the technology nawide, and by the year 2000, "there will be 70 million users generating \$40 billion in revenue in listening to president-elect Bill Clinton that capital formulation and job creation are the high est priority, we can't think of anything that wor do that more quickly than PCN.

# You've Never Seen 370 Assembler Programs Like This Before.

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change the way you look at Assembler applications and discover "A Better Way of Programming."

MICRO FOCUS

### Standards challenge

Microsoft's connectivity API no longer only one on block

Dy Jean C Bearnes

This week's Comdex/Fall '92 attenders will witness the latest schism in the client/server market: A consortium of vendors, including IBM. Borland International, Inc., Novell, inc. and WordPerfeet Corp. will begin challenging Microso Corp.'s emerging standard for datahose connectivity The new kid on the datal

block - Integrated Database Appli-

#### At a glance behind (DAP) are (BM)

Borland, Novelland Woodfladact crosoft lists 30 ven dors as supporting its

Programming Interface (IDAPI) - is a variation of Bor land's ODAPI interface for its own databases: Paradox, dBase and Interbase. Now Borland's erestion is being offered as an alternative to Microsoft's Onen Detebase Connec-

tistre (ODBC) Windows interfere With IDAPI, programmers can write to a single interface, which in turn can address both SQL relational detabases and flat-file databases such as Borland's dBase and Novell's Btrieve, sald Rob Dickerson

vice president of Barland's Parad husiness unit. "I think we figured if we didn't support the industry standards bodies, we'd get kicked. The first wave of IDAPI caviron monte on DOS Windows OSM and VolWare

industry analysts said the IDAPI ackers are pushing their standard because they were wary of Microsoft's domination of an API stan-

"With Microsoft's Access data base coming out, people are afraid that Microsoft will control the data. base access standards," said Richand Cinkeletein provident of Status mance Computing Inc in Chicago Microsoft was brought up sh the IDAPI move, "Our view of IDAPI is we'd like to see it "said Mary East

rom, group manager of Micro soft's Database Products Group, which is shipping Access this week She also said ODBC could support both SQL databases such as the Mi rmsoft/Sybase inc SOI. Some or flat-file-databases

However Borland said IDAPI would soon be available to software vendors and that ODBC amilion tions would work with it

Drivers that support ODBC will be able to take advantage of IDAPI without modification " Walsh, director of strategic partner ships at Noveli. "It simplifies the task of writing and maintaining multiplatform applications for de volumers and allows users to so many data sources across their on-

#### First fruits of Microsoft database strategy ready

By Jean S. Bozman

Microsoft Corp. is slated to an nounce this week a development framework for deaktop database applications in the form of its Access database and a com graphical user interface-based Win down tool bir

Both products, which grow out of Microsoft's Cirrus project, will be onveiled here this week at Comdex Fall '92, the company said. ex attendees will also view FexPro 2.5, an enhanced version of the fast Yhase database Microsoft gained through the June acquisition of Day Coftman Inc.

Microsoft which tested Access for nearly a year at more than 4 GHG beta-test sites, said Access can be used by business managers and

Windows users to craft the sort of database applications beretofory available only from information sys-For example, guided by prompts.

on-screen Help and prepro-grammed "macros," end users can set up database tables and create database reports.

Access is capable of creating relational database management systom tables and making SOL america to other DBMSs, said Mary Engstrom manager of Microsoft's Date hase Products group.

Among the outside DBMSs sup orted in the first release are Borland international Inc.'s Perador and dBase and Novell, Inc.'s Birt Access is priced at 850 until Jan wary, when the price will be \$700 One beta-test user said he has at

ready excated several Access anoth eations. "I'm the kind of developer who uses abstract, high-end tools, said Bill Serraba, president of WorkGroup Solutions in Seattle. With little Windows program ming experience, he said, he heren using Access 11 months ago. "It h the capability to do very complex things," he said

IBM gives unit freedom "If this is getting them more focused to better ur

CONTINUED FROM PAGE 1

and provide what the customers really need, then that will be beneficial to everybody," said Robert Hecht, vice president of ent systems at Prudential Investment Corn IBM's first public display of this intent comes this week at Condex/Fail '92 in Las Vegus, where the vendor will showcase the husiness under its new name, the Personal Software Prod-

ucts group, which replaces the former label, the Personal Systems Programming group. The Personal Software Products group is responsible for OS/2, DOS and associated operating system products such as multimodia development in an interview last week, John Patrick, vice pres sales and marketing for the Personal Software Products group, described the unit as an "independent stand-alone

business that's totally focused on the operating systems software business." A spokesman said Patrick did not mean to imply a spin-off plan is on the table, adding, "The plan is to move toward the PC company as a model. If it makes sense and the time is right, we will do the same thing on the roftware

PCs in short supply CONTINUED FROM PAGE 1

Compaq, meanwhile, has caught up with current demand for its Proen and DeskPro/How-priced lines but has made little headway into what reseder executives said was a 200,000-unit backlost

Mesos hife, the third member of the Big Three - Apple Computer. — is backlogged through the massive demand driven by lower first quarter of 1993 with its hugely neigned manhitum and innocustical sful PowerBook and Power-Book Duo notebook lines, and it has spot shortages of up to two weeks on its high-end Quadra 950 line, an

Apple spulgeswamen confirmed Tar backlogs [with the Big Three] are worse than they've ever been in the history of our hustness. Tauscher sald Other dealers agreed, expressing

concern about their ability to keep customers happy if they cannot deliver product. The problem, said Seymour Mer-

ris, publisher of "The Channel-

murkee" a Polo Alto Celif newsletter, is that the Big Three "were all too conservative to figure out that demand was going to be so high, and ey kind of stuffed themselves." The Big Three cannos in some cases provide simple component such as hard drives and monitors in the assigtities they need to meet

IBM has the most potential to esspe this problem because it can make most of its own components including processors. But it also has the most to lose if it fails. Nost ann lysts said they feel that Compan's three-month jump into the low end of the market gives it a solid feating

and that Apple's problems involve unique products, making it unlikely istomers will shift vendors. IBM, meanwhile, is struggling to prove that it can compete profitably in the PU market and needs a saccessful low-end product to remain a broad supplier. "One thing that will determine

how well IBM does (as a company) is whether they can get into supply before Compaq does," Tauscher sald, "Compaq should have been back in supply by now, and they're

Tasoscher thinks IBM can stem the flow of customers looking at Compaq and claim substantial portions of Compaq's order backlog if it can deliver its ValuePoint line It will be an uphill battle, however,

Computer Intelligence's aser surveys show that Compaq actually caught unto HM in torray of physical PC purchases in the months after the Houston-hound PC makes introduced the Prolines, DeskPro/1 and Contors product lines

The battle is going to be won on availability, and I'm beginning to see that IBM cannot ship (ValuePoint 456c] in quantity this quarter," said Mutt Fitzelmmore, who more of computerLand dealership to White Includes the Entry Sys

Personal Computer Co. Is formed from Entry

president and general manager of the Personal Systems line of business ness, has been directing a reorgani zation since early this year to give each of the Personni Systems units mure Independence. Meanwhile the operating wrstem software unit was granted more responsibility in mber. It received worlds marketing strategy responsibility and owns all U.S. marketing excess tion and distribution. Unlike its

hardware counterpart, it shares profit-and-loss responsibility with the holding company Industry analysts said they sa pect IBM will want to watch how the IBM Personal Computer Co. fares before letting go of the desktop soilware husiness. It is more likely eyeing OS/2's progress and would spin off the software group once it be-

lieves the operating system can sus tein 1997 shi OS/2 is not yet a profitable piece of business for IBM, according to a statement made last month by John Soyring, Personal Systems director oftware development programs.

# The Editors were unbiased, objective, impartial, and impressed.



#### EDITORS' CHOICE

#### Sybase SQL Server for NetWare

For its state-of-the-art feature set and blinding speed, Sybase SQL Server for NetWare wins our Editors' Choice. The product supports on-line back-up, stored procedures with control support is retaively light, SQLBase is a good choice for companies without rity through triggers, and more.

Other Inspector or STAM IO.

(6) In the September  $|\cdot|$  constant (0, 0) and (0, 0) and (0, 0) by (0, 0) and (0, 0)

M SYBASI SQL Section 31 and a square 32 March 1982 Section 1982 and 32 March 1982 Section 1982 and 32 March 1982 Section 1982 and 32 March 1982 Section 1982 Sect

Microsoft and Selection of the Sylves SYBAS

Server NLM earns an honorable mention. Though it lacks some of SQL

platforms, and Novell's NetWare SQL

#### Revised CC:Mail debuts

CC:Mail for O5/2 can now be used as an integral-

By Lynda Radosevich

Lotus Development Corp. will introduce today at ComdetoFall '98 an overhanded version of CC:Mail for IBM's OS/22.0 that can be used as an integrated component of the Workplace Shell, the

Lotus said pricing we software ships in early 1983. It is evaluating offering a free upgrade

users.

1836 will resell the product, and while it said the move is not a direct response to Microsoft Corp. with-down for Workgroups, CC:Mail will boost its workgroup product

Most relevant

"R is probably more relevant to the hardcore MIS operations than Windows for Workgroups. There is no question that OSC's real strength is in communicationsintensive applications," said Jeffrey Tarter, editor and multimer of "Softietter," as industry

rewletter.

CCMail for OS/2 Workplace Shell has been relesigned to be an integrated part of the Worksleep Shell and to function like another icon on tine esector, according to 1886, it is the 1781 32-30 electronic-mail package for OS/2. Unlike the previous 16-bit version of CC:Mail for OS/2, the program uses OS/2 2.0's object-oriented file management dreatand-dress and multi-tribut foration.

ment, drag-and-drop and multitasking features.

The program lets users automatically attach
files to CCMail messages by dragging and dropplug the file's icoo into the message.

mall enabling of any OS/2 file and quick addressing that calls up a complete address when a user types like little testers of a recipi-

when a user types the first letters of a recipient's name. An undocent's name. An undocumented feature will allow programmers to use OS/2's programming language to write

use OSZ's programming language to write rules-based processing programs for automatic sail routing, according to Lotus. The laterface includes Lotus' Smartleons and a

CCMailfor GS? Workplace Shell does not support foots, bolding underlining or other forms of rich text, but Louis said it plans to introduce support for rich text across the CCMail product line in 1993.

IBM said it is evaluating whether to package CCMail or Lotus' Notes with OS2. IBM currently results the 16th trends of CCMail for ISS?

LS | Lotus to show Improv

By Rosemary Cadas

u Lotus Development Corp. will show off Improv for Windows, its next-generation spreadsheet, this week at Comdex/fall '92 but do not expect to take a copy home

Lotas had promised to ship the xoftware, which early users said greatly improves the management of complex finan-

a improves the management of complex financial models, by the end of 1692. It now pleas to the ship it in the first oper-

This is the second minor delay in Lotus' spreadsheet business in recent months. The company had also targeted a year-end shipment for 1-2-3 for Windows

end shipment for 1-2-3 for Windows Release 2.0, but it too is now scheduled for early 1969.

Better Into than never "They are a little bit inter than we'd

like, but we want to take the time to ship the right product," said Jeffrey Beir, vice president of the spreadsheet division.

Improv for Windows will be positioned as a companion product to 1-2-3 and in some cases will be pitched as a 1-2-3 replacement, Beir said. Improv delivers case-of-use features by allowing users to input data

in English. At the same time; it should appeal to power users who have hit the wall with their current spreadabects because it removes the restrictions of convectional spreadabects and allows multiple, different scenarios to be built from

different scenarios to be built fro a single model. It also allows users to mai changes to a model by simply addite

new data or dragging and dropping variables to a different location on the model Either change is auto-

ool the model.

And despite improv's delay, il is scoring big with some early users.

Tor-Einar Oisen, a planning coordi-

nator at Conoco, loc. in Houston, is using Improv after awaring off apreadsheets years ago. "Spreadsheets are basically too hard to use and too hard to maintain because of all the cell formulas." Of-

een said.

Nooetbeless, Oiseo had been in search of a software tool that would belp him with cush-flow modeling—
a big chunk of his work. Improv, be said, allows him to change things.

#### Hot technologies center stage at Comdex

Users said they want Comdex/Pall 92 to show them effective ways to turn computing's hot technologies mutimedia, mobile computing and groupware— into real-world applications. While their goal will not be in sight, they will find a wellmarked path toward increased pro-

"I hope to come back from Comdex with the ability to make some plans." said Bob Holmes, computer technology research analyst at Southern California Gas Co.

Soutserts conversation Co.
Another PC manages, who oversees 3,000 mostly IBM PCs and servers at a major New York bank, expressed interest in getting production applications on multiprocessing servers and local-area.

The bank, which already runs
Lotus Development Corp. a Notes,
is also acouting for groupware systems that can be integrated with efforts to equip bank officers with

By showcasing real implementations of these technologies, Comdex this year will fulfill some of the promise of Condexes past. Take last year, when IBM broke its pledge to ship OS2 2.0, and Microsoft Corp. falled to deliver Windows 3.1. Both products had been promised by Comdex and shipped in January and late April, respectively.

uary and late April, respectively. This year's show premises pleaty of applications for both environments. Among the eagerly awaited products that will see the light of non at Comdex are Access, Microsoft's Wiodows-based relational database, and development tools for

base, and development tools for Windows NT and OS/2 (see story page 12). Borland International, Inc. plans to show C++ for OS/2 behind the scenes, as well. Of course, those offerings are just

a drop in the Comdex bucket of products. What follows is a brief tour, segmented by technology sectors, of some of what users can expect to find on display:

A slew of next-generation portables will be on display, many of them smaller than today's typical notebook. These will make use of Personal Computer Memory Card intermational Association (PCMCIA) cards, which will make their first major uplanh here this week, with up to 9 tendors showing

Besides PCMCLA, the big mobile computing themes will be wireless

Plantipling up hardware vanders will put on some speed to bood graphics perfomence of the system stopping graphical interfaces, humerous venders will display systems that use the Video Elactumics Samdurid Association V. Incati-bus design, and while it won't be at the will be some the stime

local-han design, and white it won't be at the show, Epoen America, lac. will efficiely begin shoping his Propression line of PCs with the Chips and Technot ogles Wingline graphics accelerater leade. little and Buyly Carp. will offer a serfer.

los socialmenter inside.

IEEE and Bopty Corp.

olici offer a performence-boosting upgrade board ther with
afflow the Installed
base of Personal Systent/2 Models 50

through Bo to move to
the 38658,C and
48658,C achip.

technology, display and color sevens. Color sevensis will be a sixplic offering, even from snaller players such as Northgate Computer Systems, Inc. and Dauphin Technology, inc. Northgate's active-matrix ZXDvtable will see a 28-MHz 1489SX and a 120M-type hard drive for \$3,779, while Dauphin will show the UT-500C, a 389SL-based passive-matrix to octobook for an ingressive-matrix to octobook for an ingres-

shely low \$2,395.
Pocket-size portables will proliferate, too, as will ourserous smaller-than-societooks. For instance, Zenith Data Systems will refease

Zenith Data Systems will refease the Z-Lite 320L, a 3.9-pound nearnotebook-size PC, based oo Intel Corp.'s 3.3V 803888L. Sharp Corp. will begin shipping a

now pen-equable version of its Wizard pocket organizer. Chips and Technologies, ine will officially get into the OEM bardware busicess, displaying prototypes of its 23pound Minilbook, a 16-by 64- prodted boxed on its POChip. The San Jose, Calli-based chip set maker bas also jothed with Logitech, inc. to create a reference design for a 4by 64-in, peo computer.

PCMCIA cards will come into their own at Comdex, thanks to a recent software standard the group set. PCMCIA cards have fallen far short of being as system-independent as floopy disks, but the new standards are "the first major step for true [PCMCIA] interoperability," said

tor of the PCMCIA.

The current driving force behind
PCMCIA is the add-in card market,
fax/modems, network s-taptee
cards and the life, for notebook and
smaller consequence.

Wireless communications demos will take many forms. NCR Corp... Toshiba America information Systems, Inc. and Zenith Data will be among the wooders showcasing portables working in a wireless

Motoreta, Inc.'a Robert Growney, executive vice president and general manager of the paging and whreless data group, cautioned that white plenty of products will be released during 1983, standards are two to three years away.

"Wireless is off the paper napkins and onto bond paper, with some hard products out there, but it takes some lime to acquire substance," he

Thirty-two bit applications are vaporware no more. Look for more third-party demonstrations of real applications running on the 32-bit applications running on the 32-bit

#### Sybase unveils System 10

SANFRANCISCO

As expected, Sybase, Inc. last week laid out Sybase System 10, its sweeping vision of client/server computing, but stopped short of giving shipment dates for specific components such as its enhanced relational SQL Server 10 database server and new

uted-processing options. System 10 is a series of new products deigned to attack many problems associatad with residing dis

computing. The products include the SQL Server 10, Replication Server software for distributing undates to multiple alter. Manianting Server software for parallel data query and massively parallel systems, the OmniSQL Gateway for reaching relational databases made by other vendors and Con-Server software for better performance monitoring, backup and recovery of on-line database systems. Prices

ween not displaced Sybase marketing Vice President Stew art Schaster said all System 10 products would be beta-tested in the first half of 1966 and shipped sometime during the year. That coincides with the first volume shipments of rival Oracle Corp.'s Oracle ? relational database system, which has ase feature Industry analysts said Sybase's vision

suppliers such as Lotus and Com Associates International, Inc. Loius is also revamping the OS2 version of its CC:Mail electronic-mail software (see sto-

spinshes, with Microsoft's recently anunced Video for Windows and Apple Computer, Inc.'s new Windows version of

Ontektime likely proving a highesty IBM will display motion video softw support for OS/2 called Ultimotion and a beta-test version of Multimedia Presents.

Intel Corn, will showcase Inden, a vie pression algorithm that offers sealable software motion video performance Indeo is already lining up industry sup

Number crunching applications might not be there yet, but hardware makers plan to serve up a huffet of conventional and multiprocessing servers this week. Intel's pext-generation Pentium chip will be shown running inside boxes positioned as next year's high-end servers from a numbers of suppliers, including NCR Corp., Dell Computer Corp., and AST Research. Inc. Others demonstrating Pentium-based systems look to include IBM and Digital

Citrix Systems, Inc. in Coral Springs Fla., will demonstrate its new Windows based dial-in remote access product.

Computerworld staff members contributed to this report.

peping but may have missed a few neluding computer-aided software ring and migration tools. "They've

rided a road map, all right, but there many places where the bridges are out

Boyle, director of research at Norma Re-I think what they missed is providing

er tools to help people get from central

ation Server because dis-

es with multiple Sybase servers. The nniSQL Gateway built on top of older Sye statement technology, will address on One early OmniSQL neer the United

ites has been a problem for

e tables, and we're now begin e the OmniSQL Gateway as bei se," Jan Prost, an ption services told a Lendon St

IDG News Service corres don contributed to this report.

# 5 ways to put DB2 ower on vour deskto



nly XDB products make your PC work like a mainframe b giving you 5 ways to put DB2 power on your desktop. And when we say power - we mean it. All XDB

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XDB Systems, Inc.

#### DEC software exec resigns

David Stone, vice president of Digital Equipment Corp.'s Software Group, is starting a new job today as president of the operations systems business unit within ATAT's network systems, partly in response to restructuring at DEC, internal DEC sources said. Dennis Roberson, vice resident of corporate software, will take over some of Stone's duties. What the consequences will be on DEC's software strategy are unclear

#### Parallel RS/6000 experted

IBM is stated to unveil its first parallel processing RISC System/6000 this week at the Supercomputing 32 Conference in Minneapolis, sources close to the company said last week. The four-processor Shared Hemory Powerparallel System is intended for scientific and ical markets only. The new system is not part of IBW's work with Bull HN Information Systems, Inc. however. IBM and Bull are developing multiprocessor RS \$000s for commercial transaction procuraing

#### College exec nabs Cause, AMS awards

on College's executive director of information technology. Bernard Gleason, last week became a two-time winner. He was both the 1982 Canne Filte award for exemplary information systems leadership - given by the higher education IS community's professional association — and one of the annual awards for achievement in 15 given jointly by American Management Systems and Carnegie-Melica Graduate School of Industrial Administration. The other 1962 winners were Salomon Brothery Inc's Poter Bloom The Chase Manhattan Bank NA's Craig Goldman, McGraw-Hill, Inc.'s Robert Lynch and Wal-Mart Stores, Inc.'s Bobby L. Martin.

#### That's Dr. Robot to you

A 64-year-old man received a new hip last week with the help of a rollot, which was used for the first time to prepare a hip sorket for a prosthetic implant more precis than traditional surgery could, according to doctors at Sutter General Hospital in Sacramento, Calif. The robot and preoperative planning software were provided by Integrated Surgical Systems, Ioe in Sucramento.

#### Surprises from Wang

ig Laboratories, Inc. previewed several products last week - some expected, others not, Counticlosted products included three new minicomputers, due to be formally announced early sext year, to expand the mid-die and high end of the VS line. Wang also demonstrated Open-Office 3.0. a Unix version of its office automation and electronic-mail system to run on HSU's RISC System/000. The Chapter 11-protocted company finally rolled out Open/Pace, an RS/0000 edition of its database application development environment. Wang originally showed the product a year and ranging on SCO Unix but shelved that version after signing a contr support IBM's Unix line

SHORT TAKES Mainframes at Comdex/Fall '92' Ves. IBM will make the PC-oriented show, with its big tron running multissedia software for the first time.... IBM also introduced a new version of its Workstation LAN File See. vices software, which runs under VM and turns the mainframe into a superserver for PCs connected to local-area networks. It also announced shipment of its 9337 storage subsystem, based on redundant arrays of inexpensive disks (RAID), making it the first sendor to deliver RAID for the IBM Application System/400 Comshare, Inc. in Ann Arbor, Mich., announced a Mierosoft Corp. Windows version of its Commander decision-support software... BMC Software, Inc. this month will unwil a network-tuning package that runon IBW s 37XX family of front-end processors.

#### HUD, Martin Marietta celebrate outsourcing contract success

Pact is expected to save taxpavers roughly \$100 million over 10 years

revisions to the solici

Corp. for the job had

to many us 50 novale

working on the hid at

one time. The compa-

nies may have spent as

much as \$10 million

each on their propos-

Demitros said an-

other reason for esse-

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not follow the more

common discretions

practice of sitting on

its hands while waiting

for a systems integra

tor to deliver the

goods. On any one day:

HI:D has % to 75 peo-

als, observers said

By Gary H. Anthes WASHINGTON D.

Two years after signing one of the largest outsourcing contracts ever the U.S. Department of Housing and Urban Development (HUD) and Martin Marietta Corp. contend then are months about of schedule and millions of dollars below budget characteristics not seen in many

discorposad sixulates projects But teside HUD, applications development and maintenance - the only data processing functions not outsourced - are not faring so well charged critics, who pointed to a choppy sea of poorly integrated. conflicting and unreliable financial

management orchesse The outsourcing project called HUD Integrated information Prosing Service (HIIPS), consists of a 30-month effort to transfer all computer processing and data co s to Martin Marietta, Ioi lowed by 10 years of running the

#### new data center and network

The propert is now 20%, or \$18 million below hadented out Transi tion to a new data center was accomplished eight months early, and the nationwide data network went up three months enrly, according to Donald C. Demitros, director of HUD's Office of Information Policies and Systems. He said HI'D expects the outsourcing deal to save taxpayers \$100 million over 10 years.

And that is not all. 'It's one of the largest IS contracts in years, and it's had no perattre press, no congressional invesus -- and there have been no protests," said Ned Cooper, vice resident and head of the \$296 million project at the Martin Marietta

restion Systems Group There is no music or silver helist at work here, according to the agen-

ey and its contractor. The project's success hinges on a harmonious relationship between the parties. which stems from extraordinarily careful preparation and execation of the hid solici

tation, Demitros said. HUD begae planning for the outsourc-1996, 2200/622/main ing in 1983 and made an award in 1999 after making more than 100 Time-charleg system Hitachi Data Systems

tation based on indus try feedback, Martin Marietta, which hat tled Roring Computer Services Co. and Elec-Imple Date System

Primary data center: Hitachi EX 60 running MVS and DBa: two Uni-

**HUD** Integrated Notwork: X.25 data network using FTS 2000 To backbook from Societ Noveli, Inc. NetWare

ple supervising project activities. Organization is key Domitros added. "Martin Marietta set on a team, and we established a mirror image. We have peer-to-peer talking. I can always find two people -

Other innovations have been more technology-driven. HUD's plan had been to set up a new data center and replace two aging net-

works with a new network then being up the whole thing all at once in one

Martin Marietta found a way to make the tran sition faster and more We were able to do more any-to-any con

connect new terminals to old mainframer and new stain frames to old terminals and have all three networks interoperate,"Conper said That allowed HUD

to move applications to the new data center early and realize cost savings by terminating a time-sharing agreement and closing a data center early Although they are

not part of the out sourcing project, HUD has worked hard to put together applications with two objectives: to give employees a common set of tools sens eynide and to exce them access to all com-

puter environments package, one word processing pack age, everyone uses the same to the same for one and so forth." Do mittees said "No other cobinet-level agency and very few large commercial enterprises can say that even

employee uses the same things.

#### a government person and a vendor Closing the gate after "Robin HUD"

in 1989 a HUD employee, known inter as "Robin HUD," exploited flaws in the agency's financial sys tems in order to make off with \$6 million. A subse quent report by HUD's inspector general revealed that HUD had more than 70 poorly integrated, som times conflicting and often unreliable financial ma-

agement systems. In January, the U.S. General Accounting Office (GAO) announced that HUD's problems remain larly auresolved. Poor systems "leave the department en to fraud, waste, abuse and mismaneg

the GAO charged.

HUD IS chief Donald C. Demitros did not dis that bleak assessment: "HUD has been criticized, [and] rightly so, for having poor financial systems Demitros said HUD is spending \$40 million san un lyon application development — nuch of that for sev en new financial systems to repisce the 70-odd existing systems. He said HUD is 18 months into a five-to

noven-year financial systems reform project.

The system emploited by Robin HUD, which failed to properly match the sale of houses with cash received for them, has been rewritten. Demitros said, ting that "we have a long way to go. There are still

seums mail. We have a long way to go. There are sit a hot of fixes to be made to systems. "His offerts may be aboved by budger cuts that his HUD hard this year. Demitres said he got 20% less than be had requested for the financial systems re-ferre effort.

-Gary H. Anthes

### 2 out of 3 users prefer **luattro Pro for Windows**

#### An independent study proves it

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ever before.

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printing from the ground up, feet lines the ten by better resident As a result, it produces the best 600 x 600 dpi resolution ever for noticeably crisper, clearer text and graphics. At less than a 300 dpi price.

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flexibility.

Thanks to a new RISC processor, tuned vector graphics and faster I/Os, the HP Laserder 4 also sets new standards for speed, It even prints many 600 dpi graphics at a true 8 pages per minute. It's faster on networks, too.

from standard

networks, too.

With 2 MB of memory built in and new internal memory compression also rithms, virtually all 300 dpi and many 600 dpi documents print documents print

memory. Two standard paper trays, with a total capacity of 350 sheets, and an optional 500-sheet tray let users keep printing without constantly reloading different sizes and types of paper. And the optional 75-capacity power envelope feeder saves them from manual feeding. Or dealing with jams.



rakes Parkasit Sepang PDDD71

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Windows driver with HP-GL/2 vector graphics also enhances printing speed.



Several popular software drivers are included: Windows, WordPerfect and Lotus. As well as the new HP Explorer
PC utility software,
which provides a printing tutorial to
guide your users through set-up and
operation of the printer's new features,

operation of the printer's new entities, All this makes the HP Lasezlet 4 printer supremely simple to plug-and-play. As you'd expect, it also offers complete document and software compatibility with the HP LaserJet III printer

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a print sample to see just how great the output looks\* If it isn't a La it's only a laser pri





#### Aiming high: Microsoft woos IS

CONTINUED FROM PAGE 1

You just can't have faith in Microsoft that they know where they're going, they're going to support you, and they're going to be " said a director at a California firm who wished to remain anonymous. He said he has worked an-

people fully with Microsoft Microsoft's general manager of business strategy, John Neilson, conceded that Microsoft must adess that lack of trust if it is to speceed in working with large corpora-

"If we start making rec tions that put IS jobs at risk, they won't trust us," Neilson said. He indicated that Microsoft has several one in the works that the company hopes will address the trust is-

Those plans are aimed at adament, where IS personnel must not only be techni rally finent but must understand the business as

To that end, most IS muni said what they are looking for from crosoft is "everything and more. eifically, the company needs to we beyond marketing and supert changes to gain a real under-anding of what is involved in manng thousands of pieces of software that are vital to keeping customers' companies running. So far, that understanding seems superficial at best, users complained

All the big firms do it Microsoft "is probably going to have to do what IBM does, which is overkill," said Roger Jamboor, vice president at Dan & Bradstreet Corp. (BM representatives on site "basically ive here" supporting policies that cover all the bases from debugging to apgrading to locating consulting services. "All the [big system] soft ware companies do it," he said.

Jamboor's point is key. If Micro soft wants to be considered a strutegic partner on a par with traditional IS partners - IRM Dietal Equipment Corp. and Hewlett-Pack-ard Co. — It will have to play by the

They're going to have to conceprector at a large California firm who wished to remain anonymous. Miproperly down not "have the business processes [in place] to support the eustomer yet." He went on to say that Microsoft peeds to understand that support for a large business enes far more than what a sin

gie PC user needs It has to include not just the software, but the business that runs on that software. Microsoft has "bright technical folks but not good business folks," he concluded.

Microsoft is responding to that criticism. The company is reported to be actively recruiting experts in fields in which it has little experience, particularly in dealing with systems outside the PC realm, such

as DEC, HP and IBM machines, "It's been an incredibly concerted effort," said Krystyna Filistowicz, an analyst at Dataquest, Inc. in San Jose Calif

Neilson did not confirm the re-ultment effort but said Microsoft eds to do a better job addressing customers' multiplying multivendor computing needs. Customers "want us to develop a lot of skills" to help



in Microsoft's becomin our strategic business Other 54 stions include: 4 · Address business needs better · Drop concern with being No. 1

cates and resellers

We are not interested

· Better open network standards · Offer better site licensing Offer discounts to developer:

provide mission-critical applications and access beterogeneous data, he said. 'Customers don't want us to say. We'll do a great job on the sktop, but sorry, you've got to get

DEC for networking." Giving the customer a voice in product direction is also key, said a technology director at a large New York bank. "In the past, it was send me your order and I'll send you an "These days, he said he nds a team to Redmond, Wash, to

s products and directions In addition, Microsoft is making allowances for multinational comnice and the difficulties of supporting liceasing agreements over-

seas and multiple-language copies of products. By streamlining licensing programs. Microsoft has reduced large customers' legal con-

ners also expect belo with internal distribution issues, "It's one thing to give a customer a mastor dieb and manual and say have a stood time ""sold In M. Harrel director of office technology at Booz, Allen & Hamilion, Inc. "It's another thing to have a distribution plan.

Changes in the works Salamic activity surrous quired changes is I bere:

 Microsoft has begun Implementing its Channel Partners programs to provide extra support for integrators and value-added resellers in vortical markets \*The role and size of Microsoft Con-

sulting Services is being expanded. \*Support services oow include sev en-day, 24-hour technical support as well as "hot site" on site serv Microsoft also recently had a meeting with several Microcomputer Managers Association members to discuss the vendor's plans for

working with large customers and to solicit advice on what kinds of rograms need to be implemented if Microsoft is to be taken seriously Another issue being addressed is the need to put a more consistent 'user interface" on the company so customers will no longer find themselves dealing with several autono

mous regions when trying to work with the company. Microsoft is said to be implementing changes in that All of these measures are orient ed at satisfying large customers

who demand that their yendors up derstand the overall computing realm and not just the box their software runs on. Microsoft needs to make inroads

nto MIS, where they speak a number of different innguages," John Dunkle, president of Work-Group Technologies, Inc. in Hampton, N.H. "What Microsoft can offer is integrating the desktop to those

However despite all this talk and indeed some concrete evidence of change - it may still be several months before the real impact of all

these changes is felt by any but a few Microsoft has "assigned peop our company, and they relate to us from a technology standpoint, but

that's about all I see," said Joe Hunter, MIS manager at Baltimore Gas and Electric Co. "Maybe it's out there, but they haven't gotten the message through to me that there's a significant change in how they do

#### At a stance

ceive more than 10,000 support calls per day, with more than 80% of them being responded ............... One in five Microsoft

employees is in product support services. according to the first tions with 15 have turned up four key requests: more line of business application rapid development end deployment of ap plications, design re-view services for down

#### Still, other fS directors are boo ful that the improvements they are hearing about will translate into

tangible offerings soon. We're building stronger rela tionships with (Microsoft)," said a technical director at a large bank in New York. "Is it going as fast as we

want? Of course not: it neverdoes Bul users seemed confident that Microsoft can, and will, take firm steps to meet their needs, even ough patience may be required. ficrosoft is definitely listening," Haraf said. "I've got great booes for

Microsoft's track record of mal ing things work, even if it takes me than one try is impressive, some observers said.

There are very few areas where Microsoft has articulated a strategy where they are not successful," Filistowicz said. "And make oo min take, they want lo own it all. They just don't have all the pieces yet."

#### Coming soon

III want to write

ury also said it will

\*An increase in M



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TRM'

# actically everything, ally nothing.

#### Charles Bahcock

#### Peer support



I was working with a friend on a project for international Data Group recently with a full panor of computing equipment: two VAXs and a dozen Macintoshes — Include ing three Quadra 700s, QuarkX-Press and three laser printers — all

of which were connected via Ethernet and AppleTalk. It was a good assortment for two peo-ple, but unfortunately, an envious IS group spotted our

condence and relieved us of two-thirds of it. reone of us realized it, but a VAX - now removed — had been the server for our QuickMail E-mail system. We had been doing everything over QuickMail. ving stories over modern lines and exchanging edited ons. Some of these stories had suddenly disapseed with the VAX. Others were on my Macintosh and eded to be somewhere else. "David," I said to my actance, now drafted as PC support technician, "let's

we this file from here to there And he did. Many times. At a great expense of time When formething goes wrong on your desktop, who you gomn call? Most likely it is not IS. More likely it is going to be David, under whatever name and title be hap ens to be disguised as he sits somewhere near you. It was not David's responsibility to support PC users. His job was managing copy flow, writing headlines and producing attractive pages. In the process of doing those things, he had learned more about our computing envi-

ronment than anybody else except the IS director.

When the IS director left before the end of the project.

David became the de facto technical support person, and it added hours to his job and hundreds of dollars of ex-penses that were hidden in his salary.

petities that Were inspect in its saury.

IS directors have long usspected that end-user tech-nical support was costing more than their organizations realized. With their budgets constrained, IS has hed lit-tle choice but to force end users to rely on the expertise in their own ranks rather than run to the profe

staff with every glitch. Just how much this entrenched, peer-to-peer tech cal support costs is the subject of a study by Noian, Norton & Co. It concludes that it is much higher than imag ined and moch greater than the tangible expenses for hardware, software and IS technical support.

Nolan, Norton concluded that the known or budgeted 1 ding per PC or workstation was \$2,000 to \$6,500. came to another \$6,000 to \$15,000 per end user. The hid den costs are "peer support, people who are not cou in the IS head count but who provide peers with guidance and support in the use of end-user computing.

By closely accounting for this expense, companies are likely to find that it is equal to or several times greater than the accounted-for costs. In the end, this hidden ex-pense will come back to haunt IS departments, with budget officers demanding to know why the company should pay for technical support in so many forms when it is

ding a central department Because IS budgets are not keeping up with the once of PC installations, technical support clearly must be selective. But the challenge is for IS to provide infrastructure and leadership in this evolving end-user picture. IS must get the resources to provide a solid infra-

structure and supply training and guidance. It then has little choice but to leave the rest to those tale pied end users co-workers rety on for help.

Sabruck in Computerworld's technology editor

#### Alpha hits the streets

Pricing for the Advan-

tage Server starts at

Users who had been

waiting for Alpha details

to plan things like get-

ting the systems into our mix of bardware," said

Joel Richon, a computer scientist at the Space

Telescope Science Institute in Balti

more, which operates the Hubble

rolling out [over time], and the ulti-

we can get our data to Alpha and

back, we can do our job." Rieb

DEC has been more forthe

eluster support, she said.

than in the past about its roll-

pha technology, according to Marge

VMS on Aloha AVD

#### DEC line gets good reviews despite a lack of available software

By Melinda-Carol Ballou

The long-expected debut of Digital Equipment Corp 's Alpha AXP sys tems last week was builed by analysts and users despite the lack of a range of immediately available soft-

DEC initially plans to ship around 10 applications, with between 50 \$20,720 and 100 additional third-party applications slated to ship by the end can now begin to make decisions. "The anof December and at least 700 more to follow by summer 1963, anid Steve Howard, marketing manager for Aldecisions. nouncement makes it a lot more real and easier

pha applications at DEC We're planning to provide a list of the ongoing status of application availability." Howard said. The compagy is also making a toll-free teleone number available for users eeking access to that information As expected DEC also ansunced two low-end workstat

with corresponding servers and Change of hos commerce for manufact mantems ranging from the desktop to the mainframe ICW, Nov. 91. Company officials also demonstrated but did not officially release three products: an Alpha AXP PC noing Microsoft Corp.'s Wind

NT: a low-end version of the DEC 3000 Model 400 AXP desktop work station, which is slated to be priced at less than \$10,000 when it ships in the spring and a high-end work tion based on the design of the DEC 3000 Model 500 AXP deskade graphics workstation, plated to run at 160 SPECmarks and ship in the

Also announced were Advantage

Server turnkey systems that include CPU mem-A sample of DEC software products wanilable on Ainha AXP oli ory, disk, tage, CD-ROM vices, choice of Quen DEC FORTEAN AND DEC COMPLISHE ALLOW FOR ME UNIS or OSE/1 and Net

ATTOM OF C. AND FORTON BASIN AND WATHOUS TH work Application Sup-ALPHA; \$650 EACH, port (NAS) 300 applications at a discount DECART FOR OPENINS AND VIOLEN 1 D-DIFFERS DEC

HET METWOREHME SUPPORT, \$1,200 DECRET: PROVIDES CASE TON 5 FOR VINS: 52 250

OFCHARATE & CARLOS COMMISSION OF THE COMMISSION TAKE EXECUTABLE VAX COOK AND GENERATE & DUA cone: \$589.

HAS 250 AND 300 ADVANCED KIT SOFTWARE AND SERV ERS TO MORE CASILY INTEGRATS ALPHA WORKS TATIONS INTO A CLIENT/SERVER ENVIRONMENT; SHIPS WITH

"DEC took a drubbing in the press" for preannouncing Alpha. Knox said, "but the feeling that we were informed and able to help The third-party software will be mate support for DEC software with clusters will be nice, but as long as Analysis attempted to differenti ate DEC's appointment from those of competing vendors. Sun Mi crosystems, Inc. and Hewlett-Pack

said. His group has already ported ard Co., which were made the same some in house applications to Open lav (see stories page 4). "It's like comparing apples and oranges," said Chuck Casale, an anvet at Aberdeen Group in Boston plans for software and about the Al-

Sun is the undisputed leader of the pha technology, according to Marge Knox, president of the U.S. chapter of the Digital Equipment Computer Users Society. In response to user input, for example, DEC moved up the timing for the release of VAX-HP is arriving at the bigh end. DEC is not announcing one more in a series of products but an entire 64-bit architecture that spans the high and low end as well as a range

out of DECnet Phase IV address spaces, accord-ing to Kevin Osterman, a network manager at the laboratory. While DECnet IV has an apward ad-

dress limit of 64,000 nodes, OSI has virtually us limited address spaces. Osterman said. limited address spaces, Osterman sain.
Having tested DEC net/OSI on URirix systems,
Lawrence Livermore Board that II "works pretty
well," but it requires more effort to manage than
DEC not Phase IV, Ostermas said. "OSI is full of
famelions," such as the ability to administer files limited address spi

remotely. "However, even if you don't need them l, you still have to configure them," he added. DEC has addressed that problem by providing atomated configuration of key DECnet/OSI ele ents such as the name server and Packetne ratem Interface, the DEC spokeswoman said.

The new DEC OpenVMS AXP platform will initistly communicate via DEC's proprietary DEC-net IV software, which is priced from \$4,260 to \$11,667, depending on the configuration, DEC

said. The system will communicate over Ethernet or Fiber Distributed Data Interface. OpenVMS AXP support for DECnet/OSI is cheduled to be available by mid-1993, DEC said. DECact/OSI network software for the OSF/I version of AXP is slated for March shipment. priced the same as the DEC not IV authors

DEC to deliver last part of DECnet/OSI strategy

By Elisabeth Horwitt WATSARD WASS

The final pieces of Digital Equipment Corp.'s DECnet/OSI product are slated to roll out by mid-1963 - approximately six years after the company first announced that Open Systems Interconnect (OSI) would form the basis for its pext-generation network architecture

DEC chose to delay the product in order to incorporate features demanded by customers. such as the ability to perform file transfer terminal emulation and other services across OSI, Transmission Control Protocol/Internet Protocol and DECaet Phase IV networks, a DEC snokes woman said. Of prime interest to OSI-DEC users was the delivery of DECnet/OSI for OpenVMS this month - about two years late

Lawrence Livermore National Laboratory has been waiting to not OSI on its VMS aveterns primarily because the international Energy Scionce Network, in which it participates, is running

# BACKLOG IS CONSUMING A LOT MORE THAN TIME.

No one denies the importance of maintaining and enhancing existing systems. They represent an enormous investment of time and money. And remain critical to the operation of most companies. But many 15 departments devote so much talent and time to maintenance that they are unable to staff new application development.

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is a practical step toward citerioserer technology.

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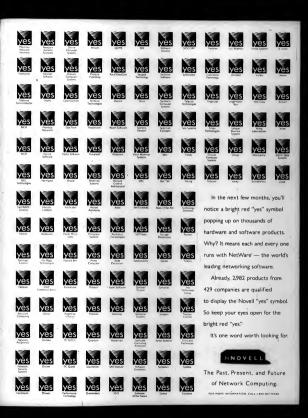
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#### Advanced Technology

#### Enabling multimedia

#### As prices of digital signal processors fall, applications emerge

#### Encyclopedia uses fractals

icrosoft Corp. will stuff a ord amount of data into its Encarta CD-ROM ency pedia. Expected to be released in February, the \$395 reference mide will contain 21,000 articles in 94 catemeies 6 500 audio clips for seven hours of digital sound, 100 animations, 800 color maps and 7,000 photos, illustraand graphs. Microsoft achieved this feat, in part, by union fractal compression tech from Iterated Systems, Inc. for stor ing color images.

#### Four-in-one

nm of researchers at the University of California at Irvine has put the power of four reduced instruction set com puters into a single chip. The new microprocessor, dubbed Viper, is only 10 by 12mm in size but can perform 100 million instructions per second. The chip design could be used in high-definition television. medical imaging, video phones. computers, advanced fax machines and in-vehicle navigation systems

#### Compression innovation

BM late last month demonstrated a multimedia computer teleconferencing system that cuts associated with processing realtime video images by two orders of magnitude. The IBM prototype "composes" tens of frames into moving pictures while the data is still compressed. Other systems ompose frames after the imputes are decompressed. IBM's system, called Multimedia Multiparty Teleconferencing, reduces the computational requirement for decompress ing analog video signals and Propulation the manner a local or ea network from 100 million operations a second to about 1 million onerations a second, or within the range of current PC chips. The prototype system involved fBM Person al System? Model 90s running IBM's AIX Unix implem and linked over a high-speed LAN.

By Ellis Booker ULTIMEDIA COMPUTING - the interration of sound image and video on the desktop - would not be sible without them, yet PK HOPE'S KNOW What they They are digital signal processors (DSP), bridge between the "real world" of sounds and sights and the digital realm

ing cheaper and more common DSPs can be understood, simply as very fast translators that take at alog signals from the outside and convert them into hit streams that a computer can understand, in addition, DSPs compress the arriving signals - in the case of video, for instance, crunching the incoming pictures at ratios of £00 to £.

of hits and bytes. And they are be-

DSP technology is the enabling technology for all multimedia." said Will Strauss, president of Forward Concepts Co., a market research company in Tempe, Ariz.

But if multimedia is new, DSP techpolory is not. The world's first single-chip, programmable DSP was introduced by intel Corp in 1979. The 2520. as it was called, could filter convolve and analyze audio signal waveforms. But sales did not meet expectations, and losel abandoned the DSP market to the likes of Toyou Instruments, Inc., which retains a market leadership role in this part of the semiconductor business But the most significant change has been falling prices for these specialtzed chips, which has brought

them out of high-priced military and

networking products. For instance,

one class of TI chips dropped from

\$300 aniece a deende aus to \$15 today, while it increased in horsepow er from 5 million instructions per second (MIPS) to 40 MIPS A watershed event came when Rockwell loternational Corp. intro duced a DSP chip set for 1,200 hit/son moderns The greatest quantity both in units and dollars, is still in modem chips," Strauss said. But he said he

expects DSP-hased hard disk controllers — used to optimize the sp ing of bits on the disk as well as adaptively correct for damaged disk sectors - will pass modern DSF sales to 1983. The reason for this is the shrinking size and increasing storage conneity of herd disks Wo'd like to think the watershed was 2% years ago, when we introduced a \$9.90 DSP," said Bill Schwebez marketing engineer at Analog

Devices, toe in Norwood, Mass. Along with falling unit prices. Schweber said, applications have conived to take advantum of source and video. He pointed out that Mil erosoft Corp.'s Windows 3.1 for example comes with icony for mulic record and playback to support



Digital signal proce

Many observers said 1993 will be the year that audio begins to be seriously integrated into general-pur-

see computer applications.

Meanwhile, DSPs to support fullmotion, full-screen video (defined as full frames at 30 frame/sec.) are

eingannounced left and right As general-purpose chips get faster and faster, will there continue to be a need for DSP?

Analysts said they think so, outing that general-purpose chips are not optimized for signal converempression and decompression. Rather than putting these tasks into general-purpose chips, DSPs will, they predict, get faster (i.e., able to handle multiple bil-lions of calculations per second) and perform even more impressive. real-time compression. Compression is key, many observers said, because networks are the chief bottle-

o Interactive (DVI), intel's expension scheme, in 2003, the industry is expected to move to the MPEG-s

or MPEG-I): A standard for 100-10-2 from a U.S. stan dards group

tographic Experts Group offerstates still im

#### DSP products

At Comden/Fall '82 this month, IBM and TI will show MWave, a je developed DSP able to handle audio (record and playback), mo

IBM has said this chip will be stand Ultimedia branded products next year.

AT&T Microelectronics, meanwhile, is reportedly sa-video codec on a chip that is almod at desktop-to-deskte conferencing, AT&T already has a base multimed is chip. dischip, the DSPRR10. that provides low-level voice, modem and fax functions. Several ven-- including Apple Computer, Inc. and Comm es, Inc. - will atmounce support for the ATAT chin at Comdex

In the beginning, only hackers to good about FSIA

Now it's ironic to see gaggles of sun-

trekking down to IS asking the gurus about UNIX

#### "Will it save our company?" they plead.

And hackers (we mean IS professionals),

weary of flaming the clueless veeblefesters.

shouldn't be faulted for wondering what took so long

(All at once now: "What took management so long to an UNIX?"

Anyone with an IQ above room temperature knows that the hostile

#### attack capitalism finally caught up with everyone.

Efficiency is now in fashion

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Now people need UNIX because it makes applications and data

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So like we said, if you can build a better balanced 386 notebook, talk to Engineering. And if you can't, talk to your nearest Toshiba dealer. The toll-free number is below.

(Surely you didn't think we'd overlook that, did von?)



1 - 8 0 0 - 4 5 7 - 7 7 7 7





#### In with the new

For the past 10 months, we've affixed a "New in '92" label to various revisions and additions appearing in Computerworld. Change is a fixture in our world and the one we write about. And we've been meeting the changes in the paper bit by bit during the year.

Today's issue by contrast is the greatest manifestation of change at this newspaper. But before I run down the specifics, let me first tell you why we've revised our design, and why change is the only constant here.

First and foremost, the needs of our readership are fast-evolving. In a nutshell, your information needs are greater than ever while the time you can devote to professional reading remains the same—at best. You, the reader, need more information but cannot allocate any

Change in the information technology environment is also ntterly breakneck. Intel's next-generation microprocessor will pack almost 160 MIPS on a single chip. That's 10 times the raw power found in the main-frames of less than a decade ago. Keeping on with surch



change is a job in itself.

So we've changed: For one thing, we look much different. Our new design speeds you through more of the paper in less reading time, and we're now using a higher quality paper stock. For a full explanation of this most

apparent difference, see page 4.

We're also featuring a conspany index, an expanded executive briefing page and a newly fashioned menagement section targeting senior 15 managers. And we are adding a group of "marquine columnists." who include

the following:
•Esther Dyson, without question among the most high by regarded industry observers in the world and editor

ly regarded industry observers in the world and editor of the "Release 1.0" are sletter. "John Ganta, head of desktop and workgroup computing research at International Data Corp., former chief analyst at Dataquest and oft-quoted industry commen-

tator.

\*Michael Schrage, a foremost authority on the interplay of technology and human behavior, as well as a noted author and research associate at MIT's Sloan School of Management.

 Etaine Bond, longtime CIO at The Chase Manhattan Bank and senior technology consultant and founder of Open Users Recommended Solutions, a user advocacy group.

mer editor in chief at Digital News, who will write a weekly technology column. These and other revisions have a singular goal in mind: to provide you, the reader, with more value for your money and rending time. If down to know if we are on the mark, in your esteemed opinion. In reachable through various means, as listed on this may.



Bill Laberis, Editor in chief



#### Thief wanted car, not laptop

Your Page One story "Laptop thefts spur security efforts" [CW. Oct. 12] asserts that thieves made off with Gen. Norman Schwarzkopf's laptop containing battle plans for the invasion of Iraq, it did not happen.

soon or req., it can not nappen. What did happen is that on Dec. 17, 1990, a Royal Air Force wing contamander. David Farquitax, stopped by a downtown London auto showroom to look around. While in the showroom, someone stole Farquitar's car along with the laptop he left in the trunk. The kap-top's heard disk contained details of

the Iraq invasion.

The computer was returned a week tater, with information intest, after the theft was widely reported in English newspapers. Farquhar subsequently was coart-martialed, demoted and fined.

Michael Alexander Framingham, Mass.

#### Managers must respect workers

Joshua Hammond's informative viewpoint settlee, "Hard and fast truths about quality [CW, 6ct, 26], hits the nail on the bend. He states, "Our greatest untapped potential for improvement ... lies in the understillized energy and resourcefulness of the American people,"

American managers must look in a mirror and ask ourselves if we are providing the leadership necessary for all employeen to grow and reach their fullest potential. If the answer is no, then we're looking at the an-

Once all employees experience the satisfaction of saccess and the praise and recognition that they earn, total quality management will become an irreversible way of life. Roger Durger Winktrop, Maine

Joshua Hammond writes in his article [CW, Oct. 26]: \*Quality pats people before tech-

nology.

"The "greatest untapped potential for improvement lies not in technology or better processes but in the anderstillized energy and resource-fulness of the American people."

Thank you, thank you, thank you'll just one manager now understands this, won've source record your stands this, won've source record your

Karl M. Waldman BBN Sustems and Technologies

#### All hands are needed on DEC

Your editoriai "DEC, take 2" (CW, Oct. 19) was very good and well received, I'm sure. It is evident that DEC has taked some wrong turns in downsizing itself. At my company, RJR Tobacco in Winston-Salem, N.C., we have felt

in Winston-Statem, N.C., we have left the impact of DEC's effort to eut costs in its field service division. The turnaround time on service calls has increased, causing us to look attaking over some of the main-

DEC must take a hard look at its downsizing effort. You are right: "Without question, DEC is at the most critical janeture in its 33-year history."

Thomas Renn

Systems technical specialist Winston-Salem, N.C.

#### Help wanted?

ed in disbelief about the sup-

rom the executives of the hightech companies ['High-tech backing.' CW, Oct. 26]. I know President Bush is not a capitalist (i.e., he is not a defender of individual rights), but he

to the same explicit policy has seeks to control the highsels industries; Chinod does. It looks as if the high-tech leaders are looking for "help," and he only "help" the government an give is protectionism and

I don't think they realize that this is the same "help" given to the many industries wracked by government intervention, including the automobile, steel, banking and savings and loan in-

> any firms in those industries e once world-class, and arican firms dominated the id's Top 10 lists. Today, they neestly cannot compete in the facts they created if this kind help' is sought by the highindustry, it can expect stmi-

> > homas Palymer San Jose, Calif.

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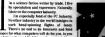
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#### The great glamour accessory

Bruce Sterling



hopes for what computers will do for you, to you and through you. I find this vastly entertaining. But what are PCs really about? As far as I can figure. PCs aren't really about "productivity" or even "information." PCs are machines whose main purpose is to make people pay attention to other people. That's why people want them. Modern computing is basically a glamour in-

This may seem an odd perspective to a seri ous-minded information technologist, but glam our shouldn't be despised. There's a lot of moand power and influence in glamour. Politics (in-cluding office politics) is mostly glamour -catching people's eye, making péople talk about you, cutting a swath on the public stage, cutting

yourself out of the eroust The PC is a desktop glamour accessory You can produce documents that look really impres sive and authentic. Twenty years ago, the U.S. secretary of state dido't have documents that looked this good. And you would never guess from looking at its beautiful business form letter that Krypto-Process Advocates, inc. is some un shaven dude in a bathrobe at his kitchen table. Do I write betier acvels because I use a computer? Nope. So why do I use one? Because it



helps me get people's attention, that's why. Thanks to computer oetworking and the glob-al phone system, I can now, with very little effort or expense, thrust myself into the lives of hun-

dreds, maybe thousands, of people just by post-ing a comment, uplouding a file or sending a fax. The downside of this swell situation is that almost anyone, in return, can reach out and touch me. I already get 90 pieces of E-mail a week. The fax hums regularly, too. And f can tell that the computer network scene is getting smarter, fast

rand more thoroughly electric.

If you think it's hell handling the flerce de-sands of human beings for attention, wait till the computers are tirelessly hanging on your phone, ing autonomous mail, collecting debts, narrow-casting junk faces and gindhanding you. Computers are eating up our time and atten-tion — not just in our business lives but in every aspect of our lives, including, by design, our most

Consider this strange phenomenon: T guys burning megabuck access time right nove downloading racy GIF files from X-rated bulletin-board systems. Many, maybe most, of these graphic images are seatned and stolen from tradirional print skin magazines.

It doesn't matter that the magnetine is better in every way; computer people pay hing sums to get these images in their computers Why? They want these tacky glamour shots in side their computers right now, that's why! It's

as simple, and as uttorly compulsive, as that. Computers are no longer "logical" or "rat nal." They're too close to us now: there's too much of us inside them. They're full of juice and ood and law and art and politics and paradox and deep, profound, nonlin-ear treachery.

For some people — the

smart, the ambitious, so times the strange and the dangerous - they're been ing the place you can stick a orenther and morn the world

ok, The Hacker Crackdown, is a possiction do on of "law and discover on the Electronic

#### Comdex: Why efficiency is beside the point

OPEN MIND by Esther Dyson re than the buyers and reporters want to see

omdex is like the real world, but more so. it's large and inefficient, and there's lots of stuff there - if you could only find it. Most things are either free (bite-size quirbes and product itternture), over-priced (times and decent food) or unavailable (rooms at the Hilton). Particu-lar people are impossible to reach, yet you run into long-lost friends in every waiting line. Any software vendor worth its salt could figure out how to make Comdex more efficient. Create an on-line cutalog of firms, products and attendces, add a scheduling program and use a linea optimization program (and perhaps a Cray sppercomputer). Everyone would be on-line, with beepers and E-mail, and would be able to reach

This ruises interesting questions: What wou the trade-offs be? How do you value Bill Gates time, as opposed to Fred Bioggs? Maybe you could design an algorithm that would equalize things by having thousands of people listen to Bill at the same time.... Of course, that's precisely what happens during the keynote speeches - all

without benefit of software. But Bill Gates isn't the only one. Many people's time is too valuable (to them, at least) to allocute fairly. Vendors want to see huyers and reporters

the vendors. Thus, because this is a market (of sorts), the sollers offer bribes — bite-size quiches, rock concerts or the company of the buyers' prers at some Las Vegas-ritzy location. In fact, Comdex is a lot more efficient than it looks. There's no central computer, but a lot of local units make eniculations and trade-offs, balancing expenses against expected returns. Still, if you factor in the enormous extra costs — time spent waiting in line, travel expenses, fruitless conversations — the whole experience may cost

a lot more than it returns to many players.

In the end, the best way to explain Comdex is

At Comdex and in the real world, people don't really want an efficient slot machine or a market; really want an efficient side machine or a market; they want doe that lets them win from time to time. The real lare of Condex is the possibility of a special discovery — the product as one eiter has noticed, the chance visit front the head of MIS at Chance or Bosing or DHL, the reporter's sent on the bus next to a garralious insider after his fifth drink or the vendor's neal next to the credators reporter who if help spread missinformation.

mber their wins, not their loss

outside the Sands, waiting for a taxi that waso't ning. A man joined me. I offered to share my taxi if it ever came. As it happened, the man was John Kelley, who runs the Congressional Reurch Service effort to provide computers and now-how to East European parliaments. It was rough him that I met Mirek Priban and Zdenek alina of the Czechoslovakian Parli

guys!) who are attending Comdex this year in hopes of ... who knows? Which reminds me of my all-time invocite Comwasta remaind me of my an-time avorate con-dex story—guaranteed true.

It happened is styrer when Mitch Kapor took a taxi in from the airport. "You here for this Con-dex show?" the driver asked.

"Yup." Kapor replied.

"So whnddayn do?" the driver asked.

"I'm in software," Kapor "Oh," said the driver, peer

ing around to look, "Are you Bill Gates?" Dyson is editor of "Release 1.0" and "Rel-EAST."



"Electrifying idea, my boy." Benjamin Franklin



"Thou art a superb writer" Shakespeare



"Music to my ears."
Wolfgang Amadeus Mozart



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# Wireless notebooks next in line

As notebook computer vendors be-

sin to make color an everyday on tion wireless come cations becomes the next

technology frontier A series of report polor entebook Introductions has set the stage for the next mand of foatures -

new communications ear Compaq Computer Corp., for instance, now offers a 14.4 hit/see. SpeedPag 144 Modern, which is the first data/fax modem to connect directly to cellular phooes. Users of Motorola, Inc.'s MicroTac and Mi bile Phones, Inc.'s 121 can use their phones with the Speeding, which

AST Research, Inc. has chosen to support ecliphar

communications by in stalling Personal Commoler Memory Card Interfe Association (PCMCIA) slots in its PowerExec family of posebooks ICW, Sept. 211.

"It's a blemish not to bays PCMCIA at this point - there's an explosion of PCMCIA cards coming," said Leslic Fiering analyst at the Gartner Group, Inc. in Stamford.

otebook vendors could and away vithout offering PCMCIA cards. which will really not become widely available until next year Andrew Watson, director of portables mar keting at Compaq North America. said that was,the major factor in his company's not introducing PCMCIA In its machines and

We have the becury of walting uatil PCMCIA is widespread because we've published the spee on our option slot, and vendors have built cards for it." Watson said However, be acknowledged that Compag will 'have to make a clear break' to PCMCIA in the future.

Ornele Glac was d

oft's NT unit. "It's

Duniel D. Sheppard, director or product marketing at AST, acknowledged that "QI next year is when the PCMCIA issue ends." But he said the open standard it establishes will drive far more options for petrbook then exist today

AST's six new notebox pand the company's PowerExce vendor for refreshing its hot-selling Premium Exec notebook for the market shifted. They added that the breadth of the and least temporarily put AST ahead of Compaq and probably Toshil America Information Systems for

They've taken a winner of a de-Notebooks, pager 30

# Oracle charts own course with Glue

By Jean S. Booman

Oracle Corp.'s receat Issuech of its Oracle Glue application programming interface (API) neatly sidesteps a potential conflict with software rival Microsoft Corp., industry analysts said. Give is intended to spur development of Microsoft Windows programs that tup into Oracle database servers: it works with out relying on Microsoft's Open Database Connectivity

Oracle Gine 1.0's architecture (see chart) provides an alter-

antive to Microsoft's ODBC client/server interface. Oracle has romised to support ODRC but said Glor will not support ODBC until the third quarter of 1963 Monarchillo Oracle is reportedly working with Microsoft on a separate product, a low-level

driver for ODBC It's a sign that open toms are coming to the database world said Judith Hurwitz. president of the Hurwitz Consulting Group in Newton, Mass., a. arket research firm that tracks software tonis, "Oracle is realizing that the client mar-

ket can help them sell use engines. But a company like Oracle has ooth ing to gain by being closer to Microsoft than to Novell. They could be buddies with everybody

Give approaches connectivity at a high level of abstraction said, it uses another Microsoft product, Dynamic Linked Library (DLL), to translate commands into server calls, 'This m rans you don't need to buy a gateway to get to a database," said David McGoveran, president of Alternative Technologies in Boulder Creek, Calif. "Oracle had to do some

serious design work to create a general-purpose APL" DLLs are widely supported by PC applic ration vendors, be said Developers can use Glue with Microsoft's Visual Basic and Excel programming environments, pasting in Glue commands such as ExcesQL, for example, to reach target databases. Supported servers will be connected to elients via Oracle's SQL communications software and SOL Connect guteways.

Glue Version 1.0 also slipports any Microsoft Dynamic Data Exchange application, such as Lotus Development Corp. 8 [-2-3. Puture Giae versions will add support for several electroale-mail file servers and personal digital assistants such as Apple Computer, Inc.'s New-

veloped by Oracle's New Technology Division which also developed the Oracle Card application hullder for Windows and Apple Macintoshes and the older Oracle Access method for tions. "Glue is an adaptable, portable integrated API that works with many look and many platforms. sald Marc Benioff. rice president of Mian API to the APIs."

ong databas supported by Gluc Moreion t B are these om Oracle, IBW's DB2, Tandem Computers, Inc.'s NonStop DI and Borland International, Inc.'s Paradox and dBase, Fu-

ture versions will support Oracle co SQL Server database and Microsoft's SQL Server for OS/2. The basic Glue tool kit is priced at \$2,995 and is stated to be av able from Oracle's direct-sales force in April of next year. The tool kit price includes a license for unlimited runtime versions of Oracle Glue. However, there is an additional \$890 yearly tenance fee for apprades and support.

tames Daly

### Virus paranoia



mer It books a Philadelphia TV station and ded pretty well last d "Officer," set to hit Oct

13, when It would wine out hard disks and display politically incorrect a sages. The station quoted a representative from a suburban computer consultancy and ran sev-eral segments about Oliver on the morning news Oct. 13 came and went, and there were on reports

Compoter-literate viewers were befuddied: Although there is one obscure virus named Oilver. It has no known activation date. Then the lights began to dawn. Seems that the TV station's li ed description of Oliver bears more than a pass ing resemblance to a fictional virus written perbacker Oliver Wendell Jones on a Banane computer in the "Outland" comic strip, "Out fand is produced by Berkeley Breathed, the same sarenstic wit who drew "Bloom County:

Last we heard, the TV station was considering stever you do, don't use the name of you poodle....What's the most prevalent method system entry by determined data sacops? Late-night break-ins? Putting a gun to your head? Wrong. Most IS accurity people report that it's the relatively simple procedure of cracking pass-

legal action against the consults

Now there's Password Coach, a software paci

lesse Berst

### TrueType tributes

First of a two-part series on True Type

technology might not



concerns of 15 managers. However, Miemsoft's TrueType uns one of the most ing's Windows 3.1 update. True-Type helps with three cor unon prot

2) Enforcing corporate standards and con-

3) Enabling document evolunes armos

In this first of two installments. Ed like to spell out why True Type is important and fill you in on two developments that will make it even more valuable. In the second installment, I'll cover "embedded fants," a

little-known TrueType feature that has The TrueType "engine" is built right into Windows. Users don't have to buy anything extra to use it with any Windows anplication. TrueType not only delivers highality type to the printer, but it also cre-

ates a matching screen display. What you see on the sereen is as close as possible to what you get from the printer. And when I say "from the printer." I mean any printer whether it's a Hewlett Packard LaserJet, a PostScript printer or even a dot-matrix model. As long as it

works with Windows, it can reproduce As you probably know. TrueType is a. "seniable" technology. Once you have a font outline on your computer, you can scale it up or down to any size. You are not

limited to particular point sizes. TrueType disguises the differences nong printers. For instance, a company s branch can use the same fonts on its HP Laserdet as the Cleveland bome of

fice does with its Apple LaserWriter. Two new products make TrueType even more valuable for corporate users. The original Microsoft Font Pack has become the best-selling type offering in history: Now Microsoft is out with a second Font Pack and a special Microsoft/Hewlett-Packard Font Set

The \$99.95 Font Pack 2 adds new typefaces, including decorative and headline Income The Still 65 Minneson Members Deals and Font Set lets owners of Series II and Series III I soon lets have the same forte that are built into the new HP Series IV. Although these products are collection of fonts, the real story is not the type. The real value comes from two new technolagies bundled along with Font Pack 2. One is Font Assistant, which is a way to

e fonts. As users get more and more True Type fonts on their systems, the situation soon sate out of head Eminetarne dientions such as CorelDraw ship with hundreds of free True Type fonts.

But having that many fonts create shlems. For instance users may find they ean't properly use the font dislog box in some applications. There isn't enough room on screen to display all the names Fort Assistant lets more opposite fonts into case they mean many me bto collections

For instance, a user might have one gre for business documents and another for newstetters. Font Assistant lets you see all your fonts at any time print a font entalog and print type specimen pages at the click. Graphic artists and type specialists will

he interested to know that Font Assistant also includes the Panose font identification technology, which classifies type numerically according to a dozen or so key charactoristics. The resulting number can be

ched" to TrueType fonts Microsoft has classified all its fonts, so you can use Font Assistant to select a size

liar foot if the original is not available. The system is able to rank lonts by their degree of similarity, giving you a simple way to seleet the best available match

Beest is the publisher of Redmond. Wash should "Windows Whicher" newsletter, a monthly briefing service for software executives and corperate technology managers.

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### Wireless notebooks next in line

CONTINUED FROM PAGE 37

sign and put it across their whole product line, which they needed to do," said Andrew M. Scybold, editor in chief of "The Outlook on Professional Computing in

Brookdale, Calif Meanwhile, users appear to be considering color more seriously now, as shown

by how demand has outstripped supply for active-matrix color products such as IBM's. ThinkPnd 700C "We would like to use color now partieutarly for people who have to make presen-tations and work with [Microsoft Corp.'s] PowerPoint," said William Lodge, a project

lender at The Turner Corp. in New York. W. B. Soper, manager of information are tems at Chevron Canada Ltd., said 486-based notebooks should last at least three

years, which lets his company cost-justify color. Active-matrix opior notebooks in rticular remain expensive, although reet prices are dropolar significantly

se, falling from more than \$5,000 to Intel Corp.'s new 486SL chip inside them.

logic components in the 386SL and sticks them around a 486DX core. This will bein create more power-efficient notebook de-signs, but users who buy from vendors that have heavy investments in software-bases power management features, such as shibs, will see little boost in b from the SI

The initial yers ons of this 3.3V lower chip run at 20 MHz and 25 MHz, and a 33-MHz version is slated to appear in the

first quarter of 1963. While Compaq and AST both rele color screens on their new 496SL-based notebooks ICW Nov. 91, both look ahead to

mameet Compaq, meanwhile, cut prices on a number of its LTE Lite/25 models to make room for a new model with an active-ma-trix color screen. Analysts and users said the screen could make this 3868L-based

model a hot seller. "That's a dynamite addition to Con neo's line," con mented William F. Ablo Jr., an analyst at BIS Strategic Decisions in Normall Many

"I was extremely impressed by this sereca," said Edward Pernstrom, MIS director at DyzCorp., a near-billion-dollar technical services firm in Reston, Va. Fern strom cited the improved brightness of the screen over ordinary passive-matrix

Other yendors some books included Ergo Computing, Inc. and

Keydats international, inc. Peabody, Mass.-based Ergo released the Nifty Fifty 496 Nosebrick, a 6,7-pound color potebook based on a 25/50-MHz intel 1486DX2. One of the most powerful note books on the market, it has an 8V-in no sive-matrix color screen and a battery life of two hours. Ergo also released a mor chrome version of the product and a mor

chrome 496SX-based notebook.

Keydata, in South Plainfield, N.J., announced Keynote, a \$2,796 notehook fea-turing a 10-in, massive-matrix across It is turing a 10-in. passive-m based on Cyrtx Corp.'s 33-MHz 486SLC.

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#### **Desktop Computing**

#### Daly

CONTINUED FROM PAGE 37

through 45 strength tests before giving it a

eternit of announal Password Coach starts at \$395 per Noell NetWare server (for an unlimited number of psers) and is available from Baseline Software in Sansalite Calif

And counting . . . According to the Delease Advanced Research Projects Agen ey's Computer Emergency Response Team, the number of security incidents on the internet have increased from one per day in 1991 to three a day this year

Pretty as a pleture Woodside Tochnol ogies in Sungyvale, Calif., has announced what it claims is the first GUI-based seeurity program with antivirus protection for

Unix. The \$495 Fortress includes a Troisn Horse detector, a password strength test, a file virus inoculator and a feature that looks for weak points in your system. Fortress is now available on San barrbaare sporting the OpenLook interface and will be available in the Motif CLI the IBM and HP worketetions word man

System meltdown countdown.... Users

of distributed systems may want to go their hands on a new book called Differ its

ated Systems Security Perspectires from Demax Software in San Mateo Calif The 829 95 book is a collection of interviews with prominent members of the IS security community. Among the con clusions: A security breakdown

far greater than the internet worm could not only happen but is likely to happen. Peter Neumana, principal scientist at SRI International, says: "We haven't yet had the colossal break-in where somebody gets into a life-critical system and kills neo pic, or hillions of dollars disappear as a re-sult of fraud. You will see the Bhogals and Chernobyls of computer security." Call 1 (800) 283-3629 for a copy.

Bring your own lampshade.... For the past few years, the computer underground has enoughed a late speakers conference called HotfoCon. This year, it will be open to all interested parties including "Jederal agents, lawyers and authors," if you'd like to check in for three days of meetings, scheduled for Dec. 18 to 20 at Houston's Allen Park Inn. For conference details, the "Security Insider Report" suggests you contact your friendly neighborhood backer ordiel into the Demon Bouch L'ader ground at (806)794-4362. Login: THRASH Speaking of cyberpunks....On Nov. 24,

Learny DiCisco and Donner all of whom were featured in the 1991 book Caberpank: Here's your chance to squeeze these fellas about the technical details of their attacks and what can be done to prevent similar as saults. Call Kaplan at (602) 323-4006 for more details. Daly is a Compositerworld West Coast senior

Turson, Ariz.-based security consultant Ray Kaplan will host an interactive 90 minute telephone conference with some of the most legendary names in the computer underground, including Kevin Mitnick.

correspondent ,



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1 n Brief

NetWare-ready PC pact CompuAdd Corp. signed a resell agreement with Novell, Inc., paving the way for all desistop and floornding PCs from CorspuAdd -- tacluding a six-model line of PCs and servers announced last week - to be shipped NetWare-read

Disk drive from Adstar

IBM's Adstar unit released several new disk drives, including a 4G-byte 5%-in. drive, a 2G-byte 3%-in. drive and the first 3% in. drive to use Enaced Intelligent Peripheral inte

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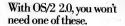
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If you run more than one application at a time with DOS and Windows, brace yourself. When one application fails, the entire system can fail. It is called a crash, but most than that. Because each time it happened to the or broke your compact. If you dish is a worked you compact if you dish to do it again. So over working on, you simply have to do it again. So over working out to the property of the property of

OSS? 20 is different, because OS2 Crash Protection belay shid applications from each other, in other words, each running application is self-contained, soil one goes down it wort affect the others or the operating system. No frequent systemwide crashes like in Windows, So you won't local liyour valuable work. Not mention time. And OSS2 can also save you money, because for less than the cost of DOS and Windows, you get the capabilities of both. Plus all the added benefits of OSS2 20 including Adobe Type Manager.

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### Cheap cure for power problems posed by and control confinenciared the Westler

Ry Mal Mandell

The addition of a few dollars worth of onsacitors to the power supplies of PCs may revent many crashes, according to recent research by an engineer at New England

Pressure Service Edward M. Gulachenski, manager of re-

ro Mass, subsidiary of New England Flortrie Company (NEEC), based his recomtion on a study of power delivered to 50 000 NEEC customers . What he found was that most of the pow er disturbances lasted less than a second and adding the extra capacitors to PC powmentary interruntions. The added canacitance would eliminate the need for many although not all users to buy uninterrupt. ible power supplies (UPS).

Now, Gulse benski is lobbying computer makers and the companies that make their power supplies to add the capacitors, and

he has received interest from at least one vendor. Digital Equipment Corp. A DEC engineer was one of thousands of New Engiand Power customers to whom Gulachenski sent a report of his findings,

Gularhenski had Modei 626 Universal Disturbance Analyzers from Dranets Tochnologies Inc in Edison N.J. attached to the feeders fanning out from six NEEC substations enroad from the horder of Now Hampshire down into Rhode Island. He then did a PC-based analysis of the disturhance data before drawing his conclu-

Each monitor was equipped with a Hayes Microsystems, inc. modem cog ed to a Compan Computer Corp. 386 PC in Gulachenski's office. The data, collected automatically is maintained on a floriend International inc Decedor detabase

#### Once a month. Gulachenski prints a report

on a Hewiett-Packard Co. Lasserlet III that details all disturbances detected during the prior month. During the study period, customers whom

were exerted as to the impact and extent of

John Elsbree, engineering man DEC's PC group in Acton, Mass., has met with Guiachenski and circulated the rec mendation to his staff for comment and

But even if a test finds a cost-effective guin in overriding common short interruptions, the best way for it to be implemented is for the vendors of PC power supplies to add the extra capacitance "... so that all PC makers benefit from economies of

scule," Elsbree said. Gulachenski's recor mergy-storing capacitance to the power plies of PCs has met with skepticism

from the manufacturers of UPS. Douglas S. Dorr, an evaluation on at National Power Laboratories, a division of Best Power Technology, Inc. in Necedah, Wis., noted that the added capacitance

protects only against the minority of interruptions that last one second or less. In addition, there are other kinds of pow er-line disturbances, such as surses, that cannot be countered by adding capaci tance. Dorr said. He also claimed that the

In rebuttal, Gulachenski cited research showing that even adding twice the capacfrance that he suggests would brine little distortion. Conceding that his recommer

ly counters momentary interruptions, Gu-Inchenski rated it a highly cost-effective measure compared with spending \$150 to \$600 for an UPS for each PC. Even in Gulachenski's office some PCs are protected by TIPRe-

neki said the substation study was the first ever undertaken by a power company. However, he expects others to follow based on his presentations of resulis at two recent conferences on power

ENTER A NEW MARKET

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market

economy

amatically

save left the market in the former Seaset Union wide open

THE CIS MARKET: DON'T WAT . Now le Tue Truet

The potential of entening the CIS market now was stated by Robert Strauss, U.S. sador to Russia, when he visited COMTEK '92: 'No one would have dreamed three years ago that this exhibit tion would be in this kind of shape. I find it very exciting and I am anxious to go back and report a to my colleagues in the United States, it's wonderful

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#### ClarisWorks now available for the Windows platform

By James Daly BANTACLANA CALIF

Apple Computer, Inc. software subsidie Claris Corp. continued its "if you can't beat announced its second internally developed product for Microsoft Corn's Windows

The rollout of the ClarisWorks for Windows integrated application comes several months after the Introduction of Claris' FileMaker Pro for Windows 2.0 database ement system

The about-face by the perennially Mactosh-centric Claric stame from beauty rket demand for the Windows 3.0 and

 graphical user interface. Microsoft claims to have shipped a total of more than 12 million copies of both versions.

ClarisWorks has proved to be a huge. 'em, join 'em" strategy last week when it

success on the Macintosh platform since it was infroduced last year, stealing the top position in the integrated packages cate-gory from archival Works from Microsoft. ClarisWorks accounted for a 77% share

of that market during the second quarter, according to the Software Publishers Asation (SPA) The market for limited

function, integrated Windows application is also growing at the autounding r 100% a year, according to the SPA. Integrated applications have be

ular in recent years as a result of the seive increase in the number of portable computers. Integrated packages are typically genered toward mobile users look-ing for a fundamental set of standard bosi-

They are often considered a good opt They are often considered a good option for users who are repelled by the high cost of full-featured software overloaded with esoteric features that they will probably never touch. Such applications also do not require the vast amount of memory or storage of their full-featured coustns.

ClarisWorks for Windows will include word processing, graphics, spreadsheet, charting and database features. Both the Macintosh and Windows versions of ClarisWorks share the same file format so

risWorks share the same file format so work created on a PC or Macintosh can run on either platform without modification or translation, Claris officials said.

The new application is slated to ship during the first half of next year. A suggest-ed retail price will be amounced at a later date. Claris officials said.

#### Systems

BlackCurrent Technology has introdu BlackMirror, an automatic, contin

bisionarror, an automatic, continuous hard disk drive data backup system... Users install BlackMirror by plugging it into the parallel port of an IBM PC or com-patible and uploading the software. Files are copied automatically. Because the backup process is continuous, files are al ways up to date, the company reported

Stored data can typically be accessed at the same speed as data oo the PC's internal hard disk drive, according to the firm. BlackMirror is available in 50M-, 120M-160M- and 240M-byte capacity units. Prices start at \$790.

Suite 300 575 Anton Blvd. Costa Mesa, Catil 92626

(714) 432-6514

Future Soft Engineering, inc. has an-nousced Terminal Plus with FAXit, a com-munications and fax software solution for osoft Corp. Windows

According to the firm, the software alws users to send and read faxes from any Windows application. The package offers preconfigured settings for more than 80 modems, plus a range of terminal emuis-tions and file transfer protocols. Other ons include automatic notification of coming faxes and on-screen revision of

ring faxes. > Future Soft Engineering

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Software Spectrum, you get a perfect match: as Email product from the best-qualified, friendlie eller in the busi

To order WordPerfect Office, simply call ware Spectrum from 7 am to 7 pm (Central). 1-800-824-3323 SOFTWARE

Whoever said time is money must have been thinking of disk storage on a mainframe computer, where downtime can cost upwards of \$100,000 at day. But now that's a thing of the past, thanks to the Symmetrix 5500 from EMC.

As the latest product in the Symmetrix

Simply put, Symmetrix is a significant technological advancement over conventional DASD and cached storage. Which helps to explain why it already enjoys widespread acceptance across all IBM and compatible platforms.

The Symmetrix 5500 is a product of EMC's

# Introducing Symmetrix 5500 from EMC.

Series, the 5500 also offers true continuous operation, which provides access to your data when you need it – 24 hours a day, seven days a week. It also offers proactive maintenance features, a full mirroring option, hardware redundancy and hot replace-

hardware redundancy and hot replacement and upgrade of all critical components.

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The Symmetrix 5500 is part of an entire line of disk storage systems hand on EMC's Investment Cached Dark Arrays (ICDA\*\*)

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In today's competitive husiness environment, it is vital to have secess to critical data when you need it. Now Symmetris 5000 brings around the clock availability and fast secess to data that is mandatory for times like these. For further information on the Symmetris Series, please call 1-800-424-EMC2, extention 1M63C.



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# Sun clears up Solaris act

With its gaze fixed on the commercial market and the "rightsizing" phenomenon, SunSoft, Inc. re cently launched an updated, bug-bombed version of the Solaris operating system

"Quality improvement" was the rollying ery for Solaris 2.1. which SunSoft cleansed of some 1,300 bust from 4 million lines of sade. The 50 hit safe ware environment, scheduled to ship next month on all new systems, offers a 40% increase in network performance and a slew of in-

stallation administration and seem-"The two biguest problems in downsizing are security and system

management," said Tom Wood, a senior industry analyst at Business Research Group, Inc. in Newton Mass. "It appears quite clearly that Sun has addressed those problems strongly with this new re-

Critical components
This version, priced at \$785 for single desktops. also provides fully symmetric multiprocessing and multithreading capabilities - critical com potents for SunSoft's multiprocessor servers Malon anhancements for some with two and three-dimensional graphics peeds were also add-

It's probably a pretty decept operating sys tem. hut Sun isn't capturing a lot of mind share yet," said Judith Hurwitz, president of Hurwitz Consulting Group in Newton, Mass, "One thing they have done is make Solaris more modular. and that's important to users

Another important aspect for users is the ability to run their current applications under Solaria 9.6 and 9.1. Vet. of the 5.000 Scalable Proposesse Architecture (SPARC) applications available today, only soo of them so far nave third-party ven-dors committed to native ports for Solaris 2.6 and

One way SunSoft said it hopes to avoid this

problem is by enablingusers to run SPARC appli-cations under 2.0 through the Binary Compatibii ity Mode feature, a kind of emulator that inch the Solaris 1.1 libraries The catch is that applie

namically linked to use the compatibility mode. SunSoft officials said about 40% of currently available applications were built with dynamic linking capabilities.

> Among the key features of Solaris 2.1 are the following:

 JumpStart: A feature that auto-matically installs and configures sdreds of SunSoft systems across a network simultaneously and with no user interaction Online Buckup: A product for restoring and backing up Solaris 2.6 data across the network. \*User Manager: A graphical tool enabling users on worldwide networks to add new accounts and

huild user directories on remote server \*Solaris Shield: A product providing C2-level security, which is a critical requirement in some \*XGL Graphics Library: A software program ming interface, hardware device driver interface and runtime environment for developing 2-D and

S.D. decement is bound are obliged a medications in the technical market \*Information On-Line: A bundled version of the erBook hypertext-based an-line documentation facility with information from user man

\*Software Manager: An icon-based feature for installing and manipulating third-party appl tions, whether they are on CD-ROM or hard disk

### Windows for Workgroups tough LAN competitor

#### By Michele Dostert

Windows for Workgroups, the combined desktop/networking product from Microsoft Corp., is expected to have a major impact on the peer-topeer local-area network operating

system market Because Windows for Workprocess includes, at no extra wharen the same type of networking ser es sold by companies such as Ar-

tisoft, Inc., based in Tueson, Ariz., Sitku, Inc., based in Alameda, Calif., and Tiara Computer Systems, Inc. based in Mountain View Calif these companies may have sudden by become concernation in the net working world

Windows for Workgroups clim ites the need for customers to buy additional networking software to ameet their PCs," said Russell Siegeiman, product manager for Winwes for Workgroups. "We have built the peer-to-peer networking. which people used to buy from companies like Artisoft, directly into Windows for Workgroups as a set of

In its first release, Windows for Workgroups does not have many af the features found in other peer-to-

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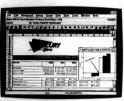
example, Artisoft's LANtastic oper ating system supports DOS servers. 12 levels of security control, imm diste print spooling, network trop hieshooting and remote processing on servers as well as the shiller to convenier accounts to a second for users out of a server and disable server log-ins and diskless worksta-

Windows, Page 52

# BAU GPR BAG RPR

By the end of this week Computerworld readers will have spent over \$71.6 Billion on Information Technology this year - representing nearly half of all IT spending to date in 1992

COMPUTERWORLD



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123 for Windows Release 1.1 now includes over 25 new features and usability enhancements.



Ami Pro 3.0 includes new features that make it more powerful and easier to use than Microsoft Word for Windows.

It's true. When you evaluate our complete solution for Windows desktops and then look at theirs, you'll see why ours is a better business choice.

Of course, both SmartSuite and Microsoft Office include full-featured products. But SmartSuite has been recently updated to include 12-3 for Windows Release 1.1 with SmartPalx and the newly rieleased Amil Pro 3.0, as well as Preelance Graphics and cc-Mail.

All four of these award-winning products share a common interface as well as our innovative Smartlcons. So when

you've learned one, you've learned them all.
What's more, SmartSuite delivers some truly
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unique integration capabilities that aren't possible with Office. All four SmartSuite products, for example, share data, text and graphs between each application smoothly and seamlessly. So when an outline produced in Ami Pro is imported to Freelance Graphics, its automatically converted into a Freelance Graphics outline and full-slide presentation. And a 12-3 graph exported to Freelance Graphics will arrive, fully editable. Not so



For a limited time, SmartSuite includes Lotus Organizer, the computerized way to keep tabs on all your daily tasks.

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cc.Mail, the world's leading LAN-based e-mail system, allows you to send documents across all major networks and computing platforms.

quickly between SmartSuite applications just by clicking the icon of the application you want to open.

Better still, all SmartSuite applications are mail-enabled. So you can use cc: Mail to send "live" documents from within each application. Office, on the other hand, requires you to install and use an optional macro with Microsoft Mail 30

Why is now the best time to buy Lotus SmartSuite instead of Microsoft Office? For one thing, you just can't beat the total

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value. In fact, for a limited time, when you buy SmartSuite, we'll give you Lotus Organizer (a \$149 value\*\*) absolutely free. It includes an on-screen calendar, to-do list, planner, address book, notepad and anniversary reminder that are all fully integrated. Plus if you're upgrading from any version of 1-2-3, Symphony, any Lotus word processor or graphics product, or cc:Mail, you'll save even more. So do the smart thing. Visit your Lotus Authorized Reseller or call 1-800-872-3387, ext. 7238\*\* for a free demo disk.

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#### Windows for Workgroups tough LAN competitor

CONTINUED FROM PAGE 49

Windows for Worksroups Our primary goal in Windows for Workour printing goal in windows for workwhich is why it's user-based, rather than supervisor-based, and lacks some of these nistration enpabilities," Siegelman said. 'We made a conscious choice for simplicity and left the birth and LAN ade tration and management functions to the

client/server LAN operating systems. Peer-to-peer LAN operating systems al-so support more client types than Windows for Workgroups, which can only sup-port DOS and Windows clients. Artisoft orts DOS, Windows, Apple Computer, Inc. Marintosh and Transmission Control Protocol/Internet Protocol clients with OS/2 support scheduled for the spring. Sitka's 10Net LAN operating system supports

DOS Windows and Marintoub elients Windows for Workgroups contains elient software for powerful elient/server AN operating systems, such as Novell, Inc.'s NetWare, Microsoft's LAN Manager and Banyan Systems, Inc.'s Vines, However, Windows for Workgroups will not work with prec-to peer LAN operating systems each as VetWare I its and AVenuis

Willing to sacrifice?

This means customers who want to upgrade to Windows for Workgroups may have to discard their simple. Intrly robust peer-to-peer LAN operating systems and replace them with the more limited con nectivity found in Windows for Workgroups. Also, in order to network Windows for Workgroups, it must be running on a 386-based PC, with a recommended IM bytes of random-access memory -- a hardware investment that many peer-to-peer pers may be unwilling to make

"A lot of our customers are really attached to their current LAN operating system and are in no hurry to discard it Ai Conway, president of ACG, Inc., a Dayton, Ohio, reseller of PC-based husiness systems, "Also, there are a lot of people out there who don't want to throw out their hardware and huy 39Fbased PCs to run Windows, when most of their applications

At first glance, Windows for Workgroups, at 8249 per PC, appears more expensive than LANtastic, which costs 800 per network if purchased with Artisoft Network Interface Cards, or NetWare Life, at \$1,995 per 10-node network. However, because Windows for Workstroups incindes both network and desktop operating sys-



tems, it will actually be cheaper for firsttime notwork installations

Since Windows for Workgrooms' debut. prento-neer vendors have been needpooling Microsoft's impact on their sales When Novell jumped into the peer-topeer market, our sales went up because .

that helped legitimize the peer-to-peer LAN operating system. We think the same thing could hannes with Windows for Workgroups," said Jack School, president and chief expension officer of Autlant Industry watchers, however, are not so sanguine about the future of the peer-to-

peer marketplace. Burton Group, a Salt Lake City-based LAN market research firm, said "Windows for Workgroups has got to be frightening the peer-to-peer vendors because it's going to affect their sales. Here much it affects them depends on how good Windows for Workups is. The major peer-to-peer players like Artisoft, Sitka and Tiara will survive; I think the smaller peer-to-peer companies may be in for rough stedding."

New 3M Floptical diskettes may look like ordinary 3.5-inch dokettes, but they offer over 28 times the capacity\*-at a low seetem and media cost.

As the world's largest manufacturer of media, 3M is a leader in producing the new Floorical diskette using a unique combination of magnetic recording and outleaf STIE\* servo track technology. Optical tracks an engaged on the burum-ferrite media surface so the

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Co-developed by IBM and 3M, the new 3M ECart" 12-inch tape cartridge for the new family of 3490E drives delivers the same proven reliability you've come to expect from 3M 3480 cartridges-with The up to twelve times the capacity of the original uncompacted 3480 cartridges. a new shell and improved cartridge handline fratures.

You'll save time, money and nue space because a single ECart tape cartridge can now store more than two elephates of data.



# Law firm migrates from Wang at least the law to be transfer to the law

By Kim S. Nash

The folks at L.A. Love's MacKenzie Brook. man have oothing on Jones, Day Reavis & Pogue, one of the largest law firms in the world with 1,200 attorneys and 22 major

offices throughout the world. However, with size come sizable prob-lens, and Jones, Day has one. Forty VS minicomputers from Wang Laboratories. Inc. have become a source of concern with Wang floundering in Chapter 11 bankruptev protection

We know there is stuff we il want to do down the road, such as imaging, that the VS doesn't have the . . . power to handle now. And the future's not looking so good. said Bryan Burgin, systems analyst and

But with an estimated \$50 million worth

into file servers for PC local-area netorks, on the way to probably dump

Instead of tying itself further to Wang the firm is replacing Wang electronic-mail document management and word process ing software with popular PC system such as WordPerfeet Corp.'s flagship word

rocessing package Approximately 3,000 PCs from yar close makers will run these packages but continue to access data on the VS boxes. That translation is made possible via Lightspeed NVS, a utility from third-party Wang supplier MacSoft, Inc. in Bakersfield, Calif.

Lightspeed, priced according to 1 number of VS processors to be accessed acts as a go-between to help VS minicom-puters talk to PCs. The product lets up to 30 PCs. Apple Computer, Inc. Mac

or Unix workstations share one Wang Local Office Connec across a LANto

get at VS data still work well so 'why dite! them now? Burgin observ

Because of the volumes of paper they genorete firms and denorthwester was

tion

-4

However, the firm is commit ted to PC LANs. where availe nents "is more stable."

a major target Wang's plan to sell imaging software and services. That a giant law firm such as Jones, Day is not interested does not bod well for the stay-alive scheme

Jones, Day's server transformation project, dubbed VS LAN, has a budget of 87 million. VS LAN was tested in two of-fices for about six months before formal rollout began early this month with ship ment of installation kits to all major loca

The law firm developed menus sim to those that end users currently see to make the change as invisible as possible, Burgin added.

Implementing VS LAN lets Jones, Day rapidly install PC products without chang-ing business operations. The benefits are twofold. Users do not have to learn new es while they are being trained to use PCs. Plus, VS LAN lets the IS depart ment migrate at a "sane" pace. Bursis The Austin, Texas, office, where VS LAN

has been in place since May, has report quicker processing under the distributed

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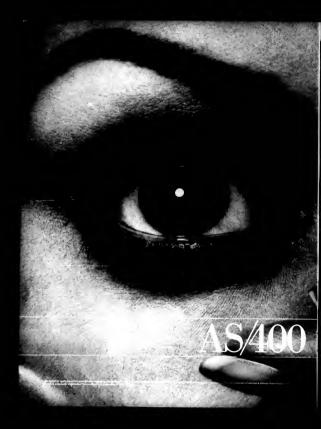
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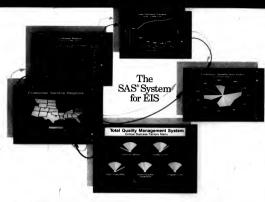
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# Digital ON THE DESKTOP

Under the Hood Of DEC's New PCs 64-bit Alpha Power Pathworks Extends. Its Reach

### JULY 1992, PC MAGAZINE DESCRIBES THE PERFECT PC.

### SEPTEMBER 1992, DIGITAL MANUFACTURES IT.

"...if your ultimate PC system runs Windaws, an accelerated VGA card can boost performance to 3 to 20 times that of a dumb frame buffer."

"For the utmost in display speed, look at local bus designs..."

"A high scale of chip set integration lowers cost and improves system reliability..."

"Ta save space, look for built-in parallel and serial ports, and IDE and video circuitry."



"Display adapters using VRAM...are often twice as fast as DRAM-based boards"

"To take advantage of a 32-bit operating system such as CS/2 2.0 or Windows NT (when it ships), you will want at least 8 MB of RAM, so a 16 MB motherboard may prove limiting in the next couple of years."

"Note that metal SIMM sockets are preferable to plastic ones."

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When PC Magazine dreamed of the perfect PC, did they guess Digital was busy building it? Introducing the new line of DECpc upgradables. Built to satisfy your ultimate PC wish list. With a price list to match. For more information.call 1,800.458.4511



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# Digital Sizes Up the Desktop

This special supplement, prepared for Digital Equipment Corp. by editors and writers of the International Data Group, is meant to focus attention on

and the second of the control of the



desking sentons.

In the first section we by to explain how Digital can claim to speed up Microsoft Windows and sate both Microsoft Windows and sate both on Digital can claim to section of the section

via his desktop machine The fourth section touc via its desiriop machine.

The fourth section touches upon how dumbiterminate aren't so dumb anymore and how a software architecture cated DECprint can allow you to initiate a two-way conversation with a remote printer. It

Service and Low Prices Fuel DEC's PC Sales Growth

In January, Digital Equipment Corp. launched a massive direct marketing and mul-order PC sales program, slashing prices 50 percent. In its determination to compete. Digital cut prices an additional 30 percent in February and again in July.

The aggressive marketing and pricing appear to be paying off. Digital was the test growing PC vendor in the country in May and June and five times this year has appeared among the top 10, according computer Intelligence, a La Jolla, Calif. market research firm.

\*Duntal has stayed on the Up-and-Coming PC Vendors list longer than anyone in recent listory," noted Dan Ness, senior industry analyst at Comreess, senior industry analyst at Com-puter Intelligence, of Digual's free-menth appearance there. In July it dropped out of the number one slot to number five, being replaced by Cumu-lin Company.

In fact, Digital's overall PC sales for the fiscal year ending June 30 were 275percent greater than its PC sales during the previous year, sources at the compa ned. InfoCorp of Santa Clara, Calif., tracks PC sales and says Digital sold 134,700 worldwide in the first six months of calendar 1992, compared to 69,660 for all of 1991. In the U.S. alone, the figures were 59,767 for the first half of 92 compared to 31,105 for 1992,

according to analyst David Carneval However, reports of rapid growth of PC hardware sales are based on increases in a relatively small installed base. Dustal barely eracked the top 20 in overall sales and it accounts for slightly more than I percent of the domestic PC market.

On the other hand, Digital's revenues from PC-related sales of software and networking like Pathworks, its PC-to

host and LAN-to-WAN nackge, boost its total revenue InfoCorp estimates DEC PC revenues, including software and peripherals as well as hardware, at \$423 mil-

lion in the first half of 1992, compared to \$261 million in 1001 DC releved calor are one of Dioital's fastest prowing areas of revenue, analysts said.

Dignal's effort through the first half combined the competitive pricing strate-gy of fast-growing PC makers such as Dell Computer Corp. with free, onsite Dell Computer Corp. with free, onsite service for a year and the Desknop Direct, 1-800-PC-BY-DEC, quick delivery number. Since Aug. 25, it has been offering its Low Profile line of PCs that it, manufactures itself with a modular,

snap-in-CPU upgrade capability "The sales reps know the products and

can explain them in a way that makes sense," said Mike Luckenbach, an MIS manager at Asca-Brown-Bovert, a Wind sor, Conn., electrical power systems and nuclear fuel manufac

Through Desktop Direct, Digital has increased the company's customer base by more than a third, said John MacGrivary, Digital's U.S. PC sales and

On June 26 Dell reduced prices on a line of PCs, prompting other clone makers, including Advanced Logic Research Inc. and Hyunda Electronics, to follow suit. Digital's latest

cuts came soon after. It likewise priced its LP line of PCs aggressively.

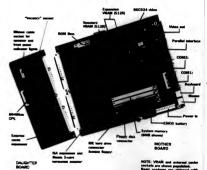
Both MacGibrary and

Intelligence's

Computer Intelligence's Ness believe Digital's reputation as a service provider rather than low prices has fueled the accelerated growth in PC sales. 'Right now we're the only apport services," he said. Clone makers upport services," he said. Clone makers upply a similar service through third arties like TRW. Ness added, "It's hard

for a smaller company to offer that kind Cover Photo Copyright 1992 by Seth Remick Design: David Grober and Three Shapers

# Inside the 425sx LP



### DECpc 425sx LP technical reference

Case: 35 x 16 1 x 15 6 exches (90mm x 410mm x 596mm) Standard Boffmere: MS 1006 5 0 Microsoft Windows 3 1, DepSett OAPlut disproviors drivers and system ubbies HOM BIOS: PROMINE

# DEC's New PCs

### Low Profile line speeds up Windows and offers modular upgrade capability

### By TOM BADGETT

igital Equipment Corp.'s 425ex LP is among the front runners in the company's new line of high-performance, low-cost, upgradeable PCs.

Notice the individual com that description. The LP in the product name stands for low profile, a reference to the narrow case that makes this line of PCs look more like terminals than PCs. The high-performance part refers not only to the 25-Mhz 80486xx CPU that drives this machine, but also to an internal design that runs some programs especially applications for Microsoft Windows – faster than competitive hardware. Screen updates for the typical Windows application running on an LP PC will be four times faster, and Word-

Perfect will be up to 10 times faster.

This speed is achieved by using a graphics accelerator and local bus video to connect the video processor directly to the CPU. That means the video-to-CPU communications are conducted at the CPU speed - 25 Mhz in the case of the 425sx LP - rather than at the much skreer 8 Mhz of the conventional PC I/O bus. (See accompanying stary on video technology, page 7.)

And, low cost means what it says.

Although the Digital of yesterday was not known for competitive prices, this new line of PC offerings is competitive in features and price. The 486sx LP pack age, for example, includes 4 MBytes of memory, an SVGA (Super Video Graph-

ic Array)-compatible display adapter, a 3.5 inch floppy drive, 122-MByte hard 3.5 inch floppy drive, 122-MByte hard drive, keyboard, mouse, DOS 5.0 and Windows 3.1 for \$1,649. Similar LP packages range from \$899 for an 80386-based system to \$2,199 for a 66-Mhz,

80486-based system.

All one needs to get these systems up and running is a video display, also offered by Digital and available from a number of bird-party suppliers as well.

The LP line includes a range of processing sor options, from the low-end 80386sx to the high-end 66-Mhz 486. The to the high-end 66-Mhz 486. The machine we evaluated used a 25-Mhz 80486sx. The 486sx is a replacement for the 386DX microprocessor, the high end chip in the previous processor la The 486sx chip is a scaled-down 486DX.
The DX model unchades internal math

co processor circuitry, the sx doesn't. The original concept of this design was to provide users who do not need highto provide users who do not need high-speed math operations with a lower-cost speed math operations with a lower-cost alternative to the DX chip. An obvious application for this type of chip would be in a network server, for example, where resource and application sharing are more important than number crunch-

ing.

The marketplace has chosen broader applications for the lower-cost 486 chip, however. The 486sx certainly is not relegated to just server applications. And the reduced complexity of the sx-series chip are now at among to make it an reduced complexity of the sx-series chip lowers system cost enough to make it an especially attractive choice for applica-tions that require reasonable speed, tech-nology compatibility and the lowest pos-sible cost.



### Digital

The 486sx series uses some same clock speeds as the 80380DX line and a priced competitively with it However, a 486sx running at the same speed as a 386DX is faster because its internal design is more efficient. In fact, Intel Corn tests show that a 486ex can work tweer as fast on some tasks as a 386DX running at the same clock speed And, whereas an 8/086DX running at a faster clock speed could approach the performance of a 48fex at a lower cost. some tests have shown that a 25-Mba

a 33-Mhz 386DX Couple the speed issue with the fact that the 486 line is a newer technology and may offer easier and hence uperad notential and Diotril's 48644-based PC is an excellent CPU choice for perfor-

mance and price The Digital 425ox LP is a com low-profile computer with a lot of logic tracked onto the mother hoard. You won't need an additional display adapter. for example, and the contr ports are all on the mother board. Conse-

slots, which are turned sideways to keep the case shen

The configuration of this machine is attractive. The low-profile box fits easily under the monitor on a deskton. Its nounded corners appearance make it look less like a high tech PC and more like a terminal. The integral power supply fan is extremely quart, thus the system easily firs toro a nowded office environment

#### 4Miss can be up to 40-percent faster than CPU on daughter board

The machine's mother board is small roughly 85 x 14 inches) and positioned in the left side of the case. The internal hard drive and floppy disks partially cover the right side of the mother board which means one has to remove installed drives to upgrade system cache.

Similar to other members of the LP family (except the entry-level 386se model) the machine new a daughter board arrangement to hold the CPU The board attaches to the front of the fore, you can plug in power, attach a

quently there are only three worlable mother board via a set of pin cons and hes parallel to it. This flexible design lets Digital use a common mother board and other building blocks for the whole line, changing only the daughter board to build models

The daughter board in the LP line includes a separate 169-pin upgrade socket. You can use this socket for a math coprocessor on the 486sx model or to install a faster 80486DX chip or a clock doubler chip in any of the upgradeable machines. (See story below.)

Interestingly, the LP series does not include a SCSI or network interface. Rather, you have to plug in a separate SCSI adapter or a network interface into one of the available expansion slore. This keeps the initial cost of the machine low and makes it so that only those users who really need SCSI pay for it. However, you would normally expect

to find at least a network interface and perhaps a SCSI port on a Digital System software is pre-installed; there-

# Need To Upgrade? It's a Snap

All members of the LP family exce low-end 80386xx model, can be mped up to faster, higher-perfor-ance machines. The 46-Mrz. 3860X unit, for example, can be oved to any of the 486 models sim moved to any of the 485 models sen-ply by replacing the dissiplier card. Any of the 485 models can be upgrad-ed easily by pugging a least CPU in the viscancy socket. The speed of the 485 processors can be doubled using Intel's clock-doubling chip. The DV2 chip doubles the internal processing speed of the orriboard

he DX2 chip courses we manning osessing speed of the orboard cessor. A 16- or 20-Mhz system rates at 50 Mhz; a 33-Mhz system rates at 65 Mhz; The speed dou-rates at 65 Mhz. The speed dou-g takes place on internal calcula-s. Data is moved from the CPU to an addition of the position. the rest of the system at the exist

system speed.

The so-celled "upgrade" socket is becoming a common feature with new PCs, and Digital's LP line is no exception. This 169-pin "overdrive" or "performance enhancement" socket (Digital's LP line). tal calls it a "vacancy" socket) end users to plug in an overdrive chip.

existing CPU and takes over at a high er speed. The overritive chip includes a math coprocissor as well as intel's DX2 speed-doubling technology. This means it operates at twice the system clock speed internally, but sall comm, nicates with the rest of the system at

ricates with the rest of the system at the existing system speed. Two overchine chips are evaluable. Two overchine chips are evaluable, one to upgrade 16 or 20-Mit systems and the systems of the system

Adding a ceprocessor

You can use the vacancy socket
Digital's LP machines in two other
ways as well. If all you need is ways as wer. It all you need it enhanced mailt performance, you can also plug in a math opprocessor in sx systems. (Remember, the sx chip's internal math coprocessor is disabled, And, you can plug in a higher-speed 804860X CPU. In this case, the onboard CPU is disabled and the new

ed system will not run as fast as one designed from the ground up for 50-66-Mhz operation. The reason is ob-our. When you plug a 50-Mhz chip into a 25-Mhz system, the computer memory, BIOS and controllers still operate at the original system speed A full-blown 50- or 66-Mhz system, on the other hand, includes memory and the other hand, includes memory and the other hand, includes memory and the other hand, includes memory. the same time, however, a 50-Mhz thip in a 25-Mhz system should pro-ide noticeable residents

chip in a 25-Mhz system should pro-vide notionable performance improve-ments, especially when your applica-tions are compute-intereive as e opposed to I/O-intereive.

The CPU daughter board on the LP machines includes additional sockets or experient. The base unit comes with 128 KBytes of external, adaptive with-back socionaly cache. You can pulg in an additional 128 KBytes of cache for even more speed, -T.B.

monstor, keyboard and mouse, and be up and running in a few minutes. Licensed copies of MS-DOS 5.0, Microsoft Windows 3.1 and other unlines are included with the package, but you don't have to install them unless your change drives or crail rooms offware.

don't have to install them unless your change drives or earliseome software. In keeping with Digital's ongoing push for broader materies, the LP series will be officed through some conventional PCand perhaps even and order. Digital's Deskap Direct selse organization will market the machines (1-800-PC-UF)— DEC), and they can be ordered through other Digital sources. But book for the Distance of the present of the present hunty Digital would be selved the present the present the present Digital would say which sales organiza-

Digital would say when lasks organizations in a carry when have some and carry construction of the construction of the conupgrades to higher performance. Yet carry logical management of doubtle the clock speed with one of Intel (Copy's clock doubtler eliga. An interestcion's clock doubtler eliga. An interestcomboard clock-speed jumpers. All of the comboard clock-speed jumpers. All of the comboard clock-speed jumpers. All of the Min system to a 33-bidar system's year and change the jumpers plop in a new and power up and nummer with a fixed to and you're up and nummer with a fixed and you're up and nummer with a fixed

muchine. The medium e supplied with a quickstart guide, a fairly detailed user minutal, exparine instruction on supprading the exparine instruction on supprading the documentation. Overall, the DEC documentation is better than many compentitive production of the control of the guide of the control of the control support telephone counterly with or you boy the medium, but we to get support telephone counterly with or to get the control of the control to the control of the control of the purple with the control of the control package we collassed. And, there is no technical reference manual with the sysem, not so one audited from Digital.

#### n summar

The overall impression this necessity Digital PC makes is good. The peological marketic and performance is excellent. And, Digital's workback sales, shipping and maintenance organization makes those PCs attractive to multiministic corporation that we are nonlinearities of the peological points o

Tem Budgett is a principal of Word Association Inc. and the author of several books on PC computing.

# Chip Design Speeds Microsoft Windows

Among the features Digital Equipment Corp. is pushing for the LP line is improved performance with dicrosoft Windows – at least four imes faster, according to the compa y. Actually, your own experience with Windows could be seven better.

chips. The LP mother board inclus VGA (Video Graphic Array)-comp ble video circuitry beard on the SI inc. 85C324 graphics accelerator. This brip was designed from the ground up to improve the performance of Microsoft Windows. This drose in two waste.

mence of Microsoft Windows. This is done in the ways, done in the ways. done in the ways may be made to the most ment of the most many producting the screen. A separate software other copieses these commands when they are to commands as patient memory for processing by the main CPU. Whay are sent to the accelerator chip. There, the procedures are processed directly in hardware and the results mental to the done of the main country processing the the processing t

how to pasts victics data back and forth across the Alfaz VO bus, in and out of memory. With the 805/264, that they is skipped for most operations, speeding Windows considerably. And, although Dighal sugpests an improvement of four times, experts at 53, which built the chip, say you can expect eight-limes-or better performance with some software. WordPerfixed for Windows, for scample, is noticitably like in scample, in softoclashy like in 19.

technology.

Our tests confirmed this claim.

Large documents with WordPeriod for Windows are all but unmanage-

able with the standard system we used, a 33-Mhz 80386DX machine

1-MByte SVGA board running at 1,024-x 758-pixel resolution. Word-Perfect on the DECpc 425sx LP, on the other hand, scrolls rapidly, even updating less boxes and image files integrated within a decument in real time without the familiar (and frustrating) wait for screen updating).

formance in the Digital machines ower conventionals competitive models: the use of VPAM in the video circulary. VPAM is clear-ported may ry that lest the system update the screen and pail in new video data at the same lime. Conventional dynamic RAM-based systems handle only one operation at a time: write the

Cost is negligible

And, white it is told that the graphics accelerator and VRAM technologies cost more than conventional SVGA adapters, the actual retail cost differential is less than \$200 for addon options. When incorporated with Digital's machines, the additional cost is probably negligible.

When the most common wholever hursteiner are reacted, he in Vo but in bypassed and performed to the property of the common property of the common and what about when you load and image from dale, which requires CPL and main memory interaction? The Qualitation properties of the and main among interaction? The Qualitation properties of the prestriction by uning his local base treatment of the I/O but. The focal base CPU and the video card the transless data at system appear ariser that he lower, 4-Mail CPU but speed on a 35-Mail system; this communication takes place at 55 Mail; for example.

This is a feature you cannot easily add to existing systems, but when incorporated into a new mother board, it is a sensible and cost-offer

# Speaking with James Liu

James J. Liu, vice president of Digital Equipment Corp.'s Person-of Computer Business Unit in Acton, Mass., was named to succeed John Rose as head of the Personal Computer Business Unit in July

Digital is coming into a crowded market saying it can compete by producing its own PCs. What makes you think you can pull it off? We started out looking not only at quality but also at reducing the cost throughout the whole operation. We

broke the cost structure down into a manifest - design/engineering through manufacturing, warehousing, distribu-

"The PC business is a high-volume mess. It is very important that you look at inventory, pspeline and obsolescence of technology costs. These are three very important areas of expenses What we did in design/engineering was [to turn] the design into a modular approach so that you can turn the design into a new product by replacing only a tmy portion of the CPU daughter card. You do not have to redesign the whole thing. You do not have to scrap

the whole thing. "We have the same boxes for the whole product line. The power sup-plies are the same. The floppies and hard disks are all the same. So upgradeability from the current model requires a

minor change of the daughter card. We also have a vacancy socket into which you can plug in an [Intel Corp.] clock doubler chip to double the fre quency from 33 Mhz to 66 Mhz. The nghter card and vacancy socket are uble protection for our customers, which is unique in the industry. "We also use advanced S3 video chips

(S3 Inc. 86C924 mscroprocessors) which give you the best video perforecause now the chips interface directly from the CPU to the local bus assembly. at a bandwidth three or four times that of the EISA [Extended Industry Standard Architecture] bus. You take advantage of very fast CPU performance in terms of the video display. We bring the power of the CPU to the customer - that's our added

value. If you go through the EISA bus, you have a limit on how much you can do. Even if you have a fast CPU, it doesn't help you much if your video is slow. "The other thing we do is use a quiet fan, with vari

ng to produce them at competitive prices?

"We did everything we could to reduce the costs of producing these PCs.

"We call it the franchise model. We ship all the components - the CPU, the mother board, the disk, the floopies to the market for final assembly. We bring them from whatever geography makes sense to supply a particular compo-

It's very much like a McDonald's restaurant. You buy the beef, the napkins, the tablecloth and shap them to the ant, where they control the quality. You bring the final assembly point

closer to the customer and that will guarantee the quality when you deliver the product. It's very much the same as delivering a hamburger or cheeseburger. "My inventory can be minimal. I can stock all common components. The only thing that is different is the daugh-ter card. We also reduce the cost of

freight and duty because now you ship them by subassembly. [Lower duties are paid on imported parts than on fully assembled cts. - Fd.1 \*The CPU daughter card is an expe

ve, small stem that I can ship them by air and reduce the pipeline time from 21 days to only five days. My inventory cost will be less. Bulky components, the monitor, the box, etc., can be shipped by sea. Those components change more slowly, so that fits my model very well. In the PC business, inventory is a very important part of your business. A PC can become obsolete very quickly, When the technology changes, we can

change very fast. "We've tried to learn from what McDonald's did in the restaurant busi

ness. It's very similar. We developed a cookbook for each country for final assembly, so the product will be consistent. We're the only company that can

Don't you still have a cost co between low-priced PCs and doing all the things that Digital wants to ality doesn't mean higher costs. Quality means r

knowledge and skills. For example, when you pass a mot er board through the soldering process, the control of the temperature determines the quality of the soldering. A young company does not have 35 years of manufacturing experience to control the temperature flow. That doesn't cost you money. It costs you knowledge and skills, and that's how we can build a quality product without inc ring more costs." A Special Supplement Sponsored by Digital Equipment Corporation



**W**e did everything we could to reduce the costs of producing

these PCs. We ship all the components to the market for final

"Qu

peed. It makes the office a much quieter place to work."

If your PCs have these differentiators, how are you

ν ESKT ()

INCOMPATIBILITY
CAN MAKE LIFE
AT THE TOP
A LITTLE TOO
HOT.

# MAYBE THAT'S WHY SO MANY PEOPLE WANT DIGITAL ON THEIR DESIGNOP.

GG Digital Equipment Corporation racked up S1billion in catalog revenue last year, toppling Dell Computer as the computer industry's top mail-order seller. 35

- USA Taday Ang st 1992

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unhappy users and lost time and money when your LAN goes down.

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Some people tell us we're too obsessed with integration. Too much the engineers. So be it. At Digital we still believe in taking the heat - so you'll never have to

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you'll never have to. In the real world not everyone calls Digital for all their desidon product needs (vet) We recognize you buy servers from here math coornessors from there and entirely somebody else's

Which is why we built our own labs to test interconnecfivity back in 1985 Since then, every Digital desktop product is network tested with every other industry standard machine available from IRM\* PS/2" and OS/2" to COMPAO" Sun Workstations\* and Macintosh". We operate a 70,000+ node network that runs our company-and tests our PCs. We even test applications between different networking configurations.

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U WEEK Laus (ESIS PC Week, October 5, 1992								
Scoreboard							LABS	
Stated on a soule of 1-5 (5-excellent)		Advanced Logic Sessorch inc. Pyer 2007 401000	AST Research Inc. State 403 Model 1238	Dell Computer Cosp. (Mineration 48603023	Equipment Corp DECN: 433dx LP	10M PC Co. PS/1 Moder 2156-076	Zanith Data System 2-4350X Model 200	
Overall weighted score		3.5	3.5	2.4	4.0	2.8	3.4	
1. Price vs. performance	(30%)	4	4	2	4	3	4	
2. Performance	(28%)	3	4	2	41	3	3	
3. Expandability	(29%)	4	3	3	4	2	3	
4. Serviceability	(10%)	3	3)	2	41	3	4	
5. Quality of construction	(10%)	3	2	3	4 .	3	33	

Count performance nicebe to cost (comparative among these six mechanics). It Countil comparative system performance in all facility. It Support for processor, many, minery and expension board apprecia. It there sell the system is assembled including uses design, present early and loss required for measuring.

No PC can network effortlessly unless it can distinguish itself as an incredible standalone.

Which is why Digital uses the best technology available. Like high-volume data highways to keep microprocessors up to speed. Whiteback cache instead of standard cache (Whiteback is the microst advanced memory-catching strategy in the inclustry). Built-in GUI accelerations to make Whodow? nut speeds four times that of standard VGA. And VRAM instead of DRAM in our new upgradables for speeding up video and milmitaring bottlenesch.

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#### One more word about networking from the people who made it happen.

can expand to meet

future ones. 99

- LAN Magazine, March 1992

PATHWORKS . What makes PATH-

WORKS the last word in networking? Choice. for one thing. Other networking operating system vendors say they offer "choice." They do - as long as it's theirs. But no

one matches PATHWORKS' choice of servers, clients

PATHWORKS works wherever and with almost whatever PCs. servers, network operating systems, local and

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tough problems better than they do including: · Security · Network Management

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Peer Networking. its PCs via DEC PATHWORKS... Our network service is We're happy with our architecture. just as flexible and It meets our current needs and

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CompuServe for answers, announcements, tech tips and more for any Digital PC or PC integration product. It's available 24 hours

a day, 7 days a week for configuration recommendations. interoperability information, upto-date information on known bugs, software drivers or downloadable software patches. Just enter GO DECPCI at the I prompt.

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through long forgotten sub-directories to find a missing file: Vivace. Vivace lets you control desktop services.

documents and folders via a graphical interface that puts the focus on how you work - instead of how the computer works. You can organize by task, by customer,

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limited time offer of 30% off list price! List Price: \$145. Now: \$102

ial actice to our Gov

1 800 DIGITAL DECdirect

# Supporting It All

Digital offers one-stop service to deal with complexities of multivendor PC sites

recent full-pagarine showed an anomal magarine showed who also predict a root be-cauted MS predict around be carefuling for the strength of th

a matterwised Pc. installment of text critical scales a problem as large as the one the metwork munager was aborge to solve. The complex mix of hardware, software and metworking technologies, as well as of vendoes, OEMs and service providers, can probleng downsteme and leave a network manager confused in stuations like this, customers want: a wide range of services and a single point of contact for problems that cut across platfarms, vendors and technologies.

Paul Kelly, corporate business manager for desktop services at Digital Equipment Corp. in Stow, Mass., believes Digital can provide the one-stop-shop-

ping service.

"What clients really want from a service provider is a company that has good technical skills in its own right, as well as contractual relationships with other

As PC support manager at Boston's Children's Hospital, Kevin Hourican has his hands hill. The hospital has more than 1,500 places of computing equipment under contract with Digital, "I really like Digital's ability to support everything," says Hourican.



#### Digital

major vendors through which it can track down and solve multivendor problems." Kelly said.

Digital is no stranger to the PC market, databa

hwing provided PC integration services for more than 10 years. It is currently one of the fastes growing PC wendors in the industry, according to Computer Intelligence, a Ly Jolla, Calif-based market research firm, and its PC Integration Services businesses has been growing at double-digit rates over the last two fiscal years.

At the same time, Digital has contractual relationships with many of the indussity's largest PC software vendors, including Microsoft Corp., Banyan Systems Inc. and Novell Inc. "If we look at the

contract mix at most end-user sites, in terms of multivendor support is becomes obvious that we have moved out of being a per-box supporter," Kelly said. "Any fault within the system is really a fault with the entire system and not an isolated problem." Kelly said Digital has invested nearly \$30 million in multivendor testing and certification through its Customer Support

Centers. For example,

many of the century

maintain a wide mix
of PC hardware, software and networking
equipment so that when a user calls with
a problem, Digital technicians certified
for each of the different packages can
simulate the user's network environment onsite in order to better diagnose
the problem.
Nina Litton, president of Oben Sys-

terms Advisors Inc. in Boston, Mass, 30d a she was essentially "pre-sold" on Digiatal's phone support for multivendor PC convironments based in part on its ability to spitalate her 10-node LAN convironment at its Customer Support Centers.

#### LAN Manager network

Open Systems Advisors has a mixed LAN Manager network of IBM-compatible PCs, including those from Dell Computer Corp., Compaq Computer Corp., Hewhen-Packard Co. and IBM. (Open Systems Advisors has no Digital PCs.) The server on the network is a System Pro running OSC, while the System Pro running OSC, while the

16

chems are IBM-compatible PCs running
- Microsoft Windows 3.1. The primary
application on the network is an R-Base
to the state of the s

"What we were really looking for was a sample number we could call if we had any problems, "Lyton said "Digital has lots of its own experts who beamstorm among themselves and figure out the problems that are too complex for a small become like are too complex.

small business like us to handle.\*

For example, the employees at Open Systems Advisors recently went into

Digital has its own experts who brainstorm among themselves and figure out the problems

that are too complex for a small business like us to handle.

OPEN SYSTEMS ADVISORS

work only to find they had lost access to it.

R-Base as a result of some unknown problem. The only thing the network manager laces was that the cover was off it server and a cleaning person had abeen in the office the night before. Open System Advosci called Diguist's phone is support and soon had a conference call support and soon had a conference call some problems. The problems of the problems of the problems on R-Base caption (2006) are proported.

LNN Manager.

By the end of the day, the team of will experts determined that Open Systems Holdwoors would be best served by having will he dashase restored from tape and bad the company up and running by the acust belimoning. In this case, the Digital experts saved the client from chasing leads that disk would prove intriutful and held net-

work downtime to a minimum.

"We used to get our support from different dealers, but we ran into knowledge and timeliness problems," Lyton said. "The database support people woold say it was the network [vendor], to

ng which would blame it on the hardware, ry etc. Digital gives us a single point of con-

Base tagt. The season of the season of the season of the biguil's offer entering. Boston's Chil-maderia's Hospital his more than 1,500 syspensis of computing equipment (PCs. on printers and perspherals) under contract with Dagasl, including 700 IBM PCs. or all the season of the sea

Pathworks. Another 15 reside on a Novell NetWare network.
The largest part of our service contract with Digital is for hardware support on our PCs, printers and perspherals,' said Kevin Hourican, PC support manager at Children's Hospi-

at Children's Hospital. In addition, the hospital purchased applications and network support from

work support from Digital.
Prior to choosing Digital for its support needs, Children's Hospital contracted with IBM to cover its

hardware, while Sears
maintained the mice of
Hewkett-Packard and
Epson printers, and
the hoopstal did in
own application support. As the number
of users grow, Chil-

dren's Hopital found it could not loop up with the application support without outside help. At the same time, it found that there were limits to the support being provided by IBM and Scars – IBM would not support the clone PCs, and Scars could not deal with the complex interaction of printers, networks and PCs.

The best thing we found about Digital besides being a single point of contact, was that they were very very Besthlet and willing to customize their service. Hourten said. For example, Digital was willing to come to the size and implications for end users and even helped to physically move equipment. At one point, an end user had a severe hard make the size of the

"I really like Digital's ability to support everything," Hourican said. "That way we could give our end users a single phone number and leave it up to Digital to trage and fix the problems."

# Manufactured by DEC

igital Equipment Corp.
is capitalizing on its
strengths as a worldwide manufacturing
company in an astempt
to become a leader in industry-standard, modular PGs that can be
upgraded to a new CPU with a snapin card

in card. In order to compete with smaller, fleet-footed companies, Dajatal has adopted a franchise manufacturing and distribution model that will allow PCs to be assembled and shipped from seven integration centers, while ensuring that the output of each center matches the quality of any other awardly noise.

"When buying a PC, customers ask themselves, will this company be there to support me? Will it support me in multiple countries? Is the support and service consisten? Our business architecture and strategies address these concerns," said James Liu, Dirieda's new vice president of its Per-

Sognation was been consistent of the Sognation of the Sog

The new PCs are based on a modular design with components manufactured at the company's facility in Tawan for assembly at seven centers around the world – Springfeld, Mass; Kantas, Ontario; Tokyo, Japan; Taoyun, Tu-van; Sydney, Australia; Sao Paulo, Brazd; and Ayr, Sotdland. Previously, Digital had subcontracted PC manufacturing to Tandy Corp., Intel Corp. and

thing C. officient & Co.

"A lot of DEC cuatomers were jumping ship, DEC will be able to pull those comers back into the fold breasant of the LP machines' specs and priving. If DEC is able to get existing customers excited about this line, we think they'll do \$250 million in ables in 1992 and 1993," and Randal Guisto, benow analyst at Workson proceedings of the property of the pr



I he new PCs, including the high-end 66-MHz 486dx2, are based on a modular design with components manufactured at the firm's Talwa

Santa Clara, Calif., reports that DEC sold 134,700 PCs through the first half of 1992, compared to 69,660 in all of

1991.

The new PC's modular design allows it to be customized by snapping in different components. 80 percent of which are common to all models. This cust down on inventory and price. We also cut cost by shipping the heavy components by ship and the lighter, high-value components such as mother boards and daughter boards by air, said the sighter and daughter boards by air, said the sight of t

Digital is aiming to shave a few hundred dollars off the cost of making each PC it sells, he explained.

#### The tranchise model Digital unweiled its franchise model

with each manufacturing career following the same rules as it hanched the LP line of FCA at the end of August. "Large customer get the same models everywhere. These customers save one sensing and mainterproduct, prescuelc, compatibility applies everywhere," and Liu. Digital is one of the few computates hepe canopile to baid and sell PCA on an included. The franchise model allows charmed the product of the production of the proclaimed. The franchise model allows faster adds, exercic and support by profaster adds, exercic and support by pro-

silhon in olde in 1992 and 1993, said and Gauci, sense enabyst at Workroup Technology, N. H. Depad officials in the condition between the condition of the co large and small vendors, Liu added.

This strategy looks more saturashed than the Diviling strategy they
guarande earlier. Bob Palmer [Digtifs new persisten] had said, not
all new persistens and Eric
Clow, region analyst at InfoCorp.
When Just, Olivent and Taudy
were probleming in PCA, Dignits'
murlecing land been the strongest part of its PC strategy. Now it is
adding design and manufacturing, Den missing manufacturing.

The missing manufacturing piece was a weakness, Clow noted.

"Overall, DEC will have to make up in volume for the lower prices is offering," said Workgroup Technologies' Guisto. "DEC squeezes \$100 to \$200 out of each LP box and is hoping that will offers some of the

is hoping that will offset some of the volume they need. I don't think it will as much as they expect because DEC's new strategy will energize the

The new LPs will be sald through Diguil's Desktop Direct for Ko. program. Lunched lust January, Desktop Direct silvened the company to up into January and Law and Law and Law and a direct channel for customers that combuses 50 percent of Diguil lust prices, fast response, and full-lase service and classification of the company of the promised 48-hour marsound, optional need-up delivery, 100-percent qualified and cone year of the counter service.

and one year of free onsite service. "DEC's PC beamens is growing first, but they started at a real low box — so it docen't take much to pump those numbers up. DEC's trying to attract the corporate user with the combination of reliability, service and support, which are positives for this sort of a buyer," and Steve Widen, senior analyst at Workgroup Technologies. "But," he asked, "are they a little uso the in the PC market to be able to pursue the in the PC market to be able to pursue.

"Bux," he asked, "are they a little too late in the PC market to be able to garner a significant amount of market share?"
"DEC has a bigger presence in Fortune 100 accounts than the other PC vendors and everyone at these accounts knows DEC's reputation for service and support. DEC is in a good position to differ-

# Speaking with Vijay Thakur

Sjoy Tholose during of the PC. Integration Basiness Unit of be installed and the management environment would be a Digital Engineers Cosp. in Lintone, Mass., is the load of the consistent, Windows-driven, core."

Not frequently mention: "Notermanton integraYou frequently mention."

What is the future direction of your PC connec-

tivity software "We want to do three things with Pathworks. We clearly want to use the Windows paradigm and make the entire installation management, configuration and operation intuitive Installing something like this under VMS today requires you to have VMS knowledge and PC knowledge. That combination is scarce in the market and it's not going to get any better. So what we have to do is create a Windows-driven environment with a graphical, mouse-driven interface so you can pick-and-choose, click, and drag and draw, rather than know the VMS syntax. That's a priority. We want to drive to the point where the management environment is very intuitive and Windows-driven. The

first phase will happen in early 1993 "The second thing we want to do is create a single, integrated server environment for the three popular tech-nologies, NetWare, LAN Manaser and Macintosh. Right now you have three separate server environments You can run them all on the same server at the same time, but they look like three different server environments. The Macintosh looks like a Macintosh because our original goal was to make the server environment look native to the client. That satisfies today's market. But tomorrow's market ... wants some consistent environment from which to manage that het-

erogeneous environment. "At the same time they want NetWare chems, IAN Manager clients and Max chems to access the same information simultaneously in a shared, record-lock manner. So our second 
objective with the next version of Pathworks would be to 
create a single, integrated server environment. You can 
buy any Pathworks chem of your choice, but you need 
only one set of but on the server. Depending on the 
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chem that you have choose, the large need 
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Own Frequently mention "information integration." How are you mering toward that?

It is necessary converted to the theory of the contraction services to be available for people transparently. We intend to add more value into Pathworks, which we believe will be a necessary.

people transparently. We mend to add more value into Pathworks, which we believe will be a necessary perceptions for all future information. The cample, system management of betrogenous clients and servers. Or back-up services from any client to any server. Or back-up services from any client to any server. Or base database access engine API [appleanen programming mercrack Virtually every application requires a database. From a system management application requires a

ming interface] Virtually every application from now on is gaing to require a dealbox. Even a system of the state of the state of the state database—you've gaing to treat all there things and keep the information in a database. Soyu've gaing to be well a database soyu've far gaing to here whether it is Informix on Sybase or their that engine allows you to access any of the tabe-ford database——whether it is Informix on Sybase or the state of the state of the state of the state of the Pathworks will provide you with a path to any of them. We believe the next generation of Pathworks should want access to any one of these data-

bases, you would have it."

Doesn't that start to change the role that Pathworks play? Instead of connecting PC users to the net and leaving them there, you're attempting to bring the desktop user much closer to the data?

"That's right, Pathworks taking on

the role of accommodating these popular in the role of accommodating these popular technologies that become sean-dard in the industry. We're actually building an integration environment on not of LAN Manager. NetWhee and AppleState for Macintosh. That's an advantage that we have because we're not ited to any one specific exclinational transfer and the control of the properties of the chinology that the control of the properties of the chinology that people are going to have." If we have the control of the properties of the chinology that people are going to have."



We're building an integration environment on top of LAN Manager.

NetWare and Apple-Share for Macintosh. We're not tied to any

one specific technology any more.

# Pathworks Extends Its Reach

Equipment Corp.'s Pathworks has rown from a link between the a client-server infrastructure, supportine a variety of key platforms, GUIs (oranhical user interfaces) and network

Today Pathworks supports OS/2, Windows, the Apple Computer Inc. Macin-tosh and Unix alone with the standard MS-DOS PC. Microsoft Corp.'s LAN Manager is part of Pathworks, which in tum interoperates with Apple's Apple-Share and offers partial integration with the reigning local area network operating system, Novell Inc.'s NetWare Pati DEC will support it within Pathworks on both the client and the server side. works supports, Ethernet and DECnet,

as might be expected of a Digital product, as well as TCP/IP, the X Window System and X.400 messaging. With support provided by works web token ring These capabilities are prov attractive to a growing number of

managers who need a client-server architecture to link disparate platforms and environments that now characterize many computing environments. In the slow-togrow minicomputer industry.

Pathworks has become a star. With 1.5 million mutalled chents and a wth rate of 30 percent last year, Pathworks revenues are second only to the VMS operating system itself in DEC's software business. Within the foreseeable future, Pathworks revnues will overtake VMS, said Vijay Thakur, group manager of Digital's PC Integration Business Unit in Littleton,

Digital officials have plans for Pathworks that they believe will continue to enhance its appeal. Thakur sees the evo-lution of Pathworks as going through three stages. The first stage consisted of the use of LAN Manager to link MS-DOS and Windows PCs to the VAX. The second stage had Pathworks reaching ont to a broader array of platforms, crivironments and protocols.

Thakur conceives of the third stage as \*information integration.\* Pathworks is now moving beyond the limited capacity to supply connectivity and file and print services to a variety of desktop devices into a more fully functional, heteroge-

Such an environment would offer the

ability to access a document throughout the network, regardless of platform, environment or protocol. It could share voice, image and other multimedia services across desktop devices, offer enter prise-wide messaging and transaction ocessing and a host of other features.

These functions - or some of them works. In the short term, over the next six months, users can expect a series announcements that extend Pathworks to new platforms while increasing the range of features and ease of managing the PC integration suite, Thakur said Pathworks servers are separate. Path-works for Macintosh, for example, pro-vides file service to Macs, and Pathworks. When Microsoft's Windows NT ships,

the only technology out there doing an equally good job producing a GUIiven management environment across

all these technologies and platforms."

By late spring Digital intepds to offer
NetWare file and print services from
either VMS or Ultrix Pathwirks servers. Today Pulmordy clienty running the NetWare Coexistence option can select

But they cannot obtain NetWare services from the Pathworks server. Thaker said this move worse supposed the goal of providing 'a single step toward the goal of providing 'a single step toward." Today

NOW Within Six Months

Thakur said such support could be expected within the next six months. The Santa Cruz Organization Inc.'s SCO Unix may be supported in the same time frame if users request it, said Katrina Hollman, marketing manager

for the PC integration group Pathworks developers are works new management application that will enable a user of a Windows or Windows NT Pathworks client to manage the works can only be managed from the works can only be managed from the server and the task requires a high degree of skill. Hollman said Digital plans to regularize management of all the envi-ronments so that a standard GUI becomes the interface to all current and

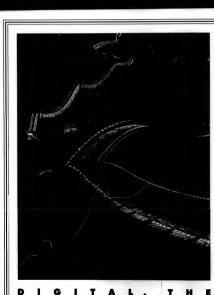
ture Pathworks-supported platform "You will see Novell doing a great job managing NetWare and Macrosoft doing a great job managing NT," Thakur said. \*But Pathworks is going to be perhaps

for DOS provides file services for DOS or Windows systems. Both server app cations can run on the same VMS s tem. And while both save files in a VMS term. And while both save files in a VMS format, both provade interfaces to the client user that make it appear as if files are in their nature folymats. "But if a Mac client using AppleShare and a DOS client using LAN Manager in

a Padraweks environment want to access the same file today, they can only do it as a sequential access. They could not do a simultaneous read-write because we lack the necessary record locking and man-agement," Thakur said. "In the longer term, our vision is to combine the ways of accessing the server into an integrated

server environment.

For users turning to an open systems philosophy to avoid dependence on single vendors, Pathworks supports an array of standards and de facto standards. But there are still holes. Digital says, for Continued on page 26



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OPEN ADVANTAGE

# Mainframe on The Desktop

"You can run a whole company from one of these machines," says DEC's Gaubatz. The 64-bit Alpha workstations are due by year's end.



DEC's high-end Alpha workstation, code-named Flamingo, is a single-pro machine that features six 100-Mbit/sec. TurboChannel plots.

pital Equipment Corp
presently offered a seath
prevocw of its upcoming
Hamingo, forturing three and se HaMobiece. Turbelchamiel slose, respectively. Digital sours the Ingla-ent
Plantings of the Ingla-ent
Flamingo will likely be preed at less
than \$50,000. and Sandspeer, the
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forming model, will likely be less than
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maximes and win to purvo a assumption of Alpha workstations to be announced by the end of the year.

"Enimings is the highest cent traditional workstation we're addressing right now. I would position the Sandpier in the midrange. That leaves from for other things to happen at the low end," said Don Gaibbate, where president of Dag-

tal's Workszations and Servers Group in

Maynard, Mass.

You can run a machine at 32 bits and
achieve reasonable SPECmarks, said

"We do have low-end machines actually running at this time on at least two operating systems. You're looking at what I call a full product line very early in the launch of the Alpha workstition

family, and Carbotz,
The Alpha workstations are a continuation of the existing DECuation line,
according to Grubez, Common to both
Emac in the TurboChannel system bus, di
The machines also have the same twodimensional and three-dimensional
graphics, multimedia, communications, i

proposes, measurement, communications, sturage, and VME and real-time interfaces. The primary difference between the DECstutions and the Alpha workstations in the 64-bit CPU.

"People tend to overlook the fact that going from a 32-bit machine to a 64-bit.

Giablaz "Togy the sum opportunity of the com-Giablaz "Togy the sum opportunity of the comowhile you're actually running a machine twice as hig (60 lets) says you have an unprecedented amount of 'headroom'. These platforms will have the leadroom to be able to evolve large applications through the 1998. "In graphication in the comportunity of the composer-aded design) used in nature of the composer-aded design) used in nature of the composer-aded

An example of a large application in ECAD infectorical computer-adied design) used in ustroprocessor engineering. Chip design can be done on a 22-bit system, but it becomes increasingly more difficult because you run out of headroom and start bumping your clienswa against the stude of the bus, said Gaiabaz. From the chip designer's perceive, the actual interoprocessor is, in some cases, as much a reflection of the design critical more as of the physical design critical more as of t

anachane is a major accomplishment, entity, he said.

A Special Supplement Sponsored by Digital Equipment Corporation

Other "large" applications include MCAD (mechanical computer-aided design). For example, the Flamingo could produce an image of an eneme block and a piston and enable users to fit the piston into the cylinder block, checking clearances. The approach allows the designer to model how the pieces will work together and adjust the clearances during the design stage, rather than in

The systems promise a much higher level of simulation using more complex data sets and more data, Gaubatz added.

#### Applications are in demand

In architectural applications, the machines provide the capability to show a prospective buyer of a 90-story building how it will look inside and out, exactly as it would be when occupied. "This is one of those situations where the least confessionated customer or over well place the largest demands on the system. Such applications are in demand as soon as they are implementable," Gaubatz said. Applications such as these put existing

ster systems at their limits, "When we say to the industry we're going to 64 bits and some people say we don't need it that's not true. These systems not only have the power to do these kinds of applications; but also the room to grow bewond them " said Gambatz

Currently, Digital is working on running benchmarks for the Flamingo and Sandpaper, which the company says are so powerful that they have the ability to contribute as database servers and appli-cation servers. "We've doubled the word size and the capacity. For those applications in which the data seeds over and becomes twice as big, the systems are not going to slow down. That's what we mean by headroom. The Flamingo is literally a desktop mainframe. This machine is more computing than most companies have in their whole place You can run a whole company from one of these machines," said Gaubatz.

The Alpha CPU itself features 8 KBytes of internal cache for data and 8 KBytes for instructions. Secondary cache ses of 512 KBytes with a highspeed, 256-KByte data bus tying the sec-ondary cache to main memory. "We have doubled the [word] width for the fetch. We can fetch 32 bytes in one cycle, so 256 bits comes flying into cache in about 200 manoseconds. The memory and cache have been optimized for the Alpha chip," said Bill Jackson, marketing . upon tump, said Bill Jackson, reserveting manager for Alpha workstations in May-nard, Mass.

The 100-Mbit/sec. TurboChannel slots

#### Snap-in CPU Upgrades Keep **DECstation Family Current**

Although Alpha-chips are at the heart of still-to-be-announced DEC workstations, the company has not forgotten the microprocessor architecture powered its earlier entrants into the RISC market.

Customers who invested in Ultri based DECstations that use the MIPS R3000 family of chips will soon be able to move to the next generation of to move to the next generation of MIPS processors by simply snapping new "daughter cards" onto the mother boards of their workstations. DECostation Product Manager Tracy Richardson emphasized the case of these customer-installable upgrades to the R4000 chip, which he said will deliver a performance increase dou-bling or tripling the power of Digital's current R3000A-based workstations.

In addition to installing the new daughter card, users will also have to install a revision of Ultrix that supports the R4000 chip, said Richardson

the R4000 chip, said Richardson. The R4000 is a 64-bit chip, but the Digital implementation will be 32 bits. Digital plans to use the fastest chips available in volume on the daughter cards, according to Richardson. The first available upgrades will use an R4000 running at 50 Mbz. Even in a 32-bit implementation, the

Even in a 32-bit implementation, the R4000 contains design features that take it beyond the R3000 in perfor-mance. Industry chip guru Michael Shiter wrote in his October 1991 "Microprocessor Report Newsletter" that the superpipelined R4000 is "the first of a new generation of micro-processors that will reshape computer ystems over the next few years." Slater said that although the R4000's

average of 2 to 2.5 clock average of 2 to 2.5 docks/murration is roughly wrise than of the PRODY's 1.25 clocks/mistraction, the performance gain comes from the fact that the deeper pipeline makes a higher clock rate possible. According to Slater, the RHOOD appears from an external view to the prostile control of the PRODY of the

tion per cycle.

Slater added that although the R3000 peaked at 40 Mhz, the R4000 is starting out with a pipeline, clock of 100 Mhz



He said the R4000 is designed to serve as the basis for two and possibly three as the basis for two and possibly three generations of processors. One neas-generation wersion will feature a smaller die size and lower power dissipation, and another will have twice as much cache, 32 KBytes, and will be designed to operate as 150 Mbr internally. Another version in 1993 will have a 64-bit per size of the control of KByte cache using 0.5-micron and tuser processes, and operate at a 200-lbz internal clock rate.

Mbit internal clock rare.

DECS Rekhards and the upgrades will be offered for all current DECsations OND closes the Personal Control of the C Continued on page 26

on Sandpiper and Flamingo are compatible with existing two- and three-dimensional graphics boards, communications ons such as FDDI (Fiber Distributed Data Interface), and storage options from DEC and third-party vendors Sandpiper offers three Turbochannel slots, the same as the existing sop-of-the line DECstation 5000 Model 240. Flamingo ups the ante to six Turbochan-

The systems will feature standard Ethernet and phonest insurconnects, includme ThinWire and 10 Base-T. Users will be able to network the systems immedia

external SCSI interface that work comcurrently. Also featured will be built-in audio and two-dimensional graphics. see these systems becoming the multimedia development platforms of choice. For example, you can put DEC-spin [Duptal's video teleconferencing product) in one slot FDDI in the ser and slot and another SCSI controller for even more disk in the third slot," said

Combara You could have very much greater than 120 GBytes of data, so you could huge databases. You could put ATM (asynchronous transfer mode) in a The systems also feature embedded slot, you could put a token ring and you

could put in a TurboChannel-to-VME interface," he added.

Analysts expect the Alpha workstations to deliver 100 SPECmarks (more than double the performance of a VAX 9000 Model 210)

ate at 80 to 120 SPECmarks with 512 MBytes of memory. In comparison, The DECstation 5000 Model 240 rates 32.4 SPECmarks and has a maximum memory of 480 MBytes

Flamingo will offer graphics capability of 1.2 million threetors/sec. and 270,000 Z-buffered trangles/sec., according to company docu-Continued on page 26

### Opening PC Windows in a Workstation World

Even though workstations have been made easier to use with graphi-cal interfaces such as DECwindows, for some users there's just nothing like comfortable MS-DOS and their

comfortable MS-DOS and their favorite PC applications. DOS attainments who have Digital Equipment Corp. workstations can get the best of both works without and the best of both works without machine onto izing a second machine onto lesktops. Rather, a software ct called DEC SoftPC provides a to DOS emironme ss to users' existing DOS files

nd applications.
DEC SoftPC is availab e-user version for both VMS VAX-stions and a \$725 version for \$CCUters DECisations. It enables ers to retrieve and share data long the different operation the different operating syst ments. Users of VT220 ter nais or X terminais connected to work stations that run SoftPC can also use the DOS emulation environment.

the DOS emulation environment. Although the software provides emulation of a PC AT-class machine (based on intel Corp.: a 80286 plus a 80287 numeric coprocessor), perfor-mance is actually better bocassor environment in the provided of the application is running on a more pow-nul workstation. According to Digi-stal's testing, DOS applications can run anywhere from one-sed-a-that times as test as a PC AT on the VAX station 4000 VII C in more than the VAX station. 4000 VLC to more than three times a fast on a VAXstation 4000 Model 60

tast on a VAXstation 4000 Model 60 or a DECistation 5000 Model 20.4 the top is the VAXstation 4000 Mode 90, seven times as fast as a PC AT. The latter release of DEC SoftPC, version 3.0, adds several features to



the basic package that runs MS-COS 3.0. Resizable windows are now available. Video emulation includes VGA (Video Graphic Array), EGA, CGA and Hercules, as well as MIX on the VT220. In addition, a native MS-Mindows driver provides higher performance with Windows-based applications. As before, multiple DEC SothPC tons. As before, multiple DEC SothPC

Custs, can set up two hard disks of up to 32 MBytes each, designated Co and D. LIM 4.0 expanded memory, it of 32 MBytes, is supported. DOS files and applications on 3.5-

at the workstation if it has a local floppy drive. If there is no local floppy drive. SoftPC can attach to a PC and use its floppy drive in a feature called SlavePC.

If the workstation

ning DEC Soffic has a moute statched, it can emission alternant bus mouse in the DOS environment. Communications ports, COM1 and COM2, map to the serial ports of the system running DEC Soffic. Printer connections, LPT1 and LPT2, map to the serial posts of the serial posts of the system running DEC Soffic. Printer connections, LPT1 and LPT2, map to the serial posts or to a speciel decide communications software should be steaded before purchasing because of the officeronce in signaling on the PC sted before purchasing because of a differences in signaling on the PC d the VAX or RISC processors and ferences in the way those proces-

pany, many commission in pany, many commission work correctly by the same token, Digital has test frundreds of PC applications but as not guarantee that all of the ten thousands of available DOS appliances.

yes of main memory to operate in yunction with Ultrix Worksystem ware. Running in a VMS environ-nt, DEC SoftPC alone requires 2 bytes of main memory, when run-spin conjunction with DECwindows teeds 6 MBytes. Digital recom-trids, however, using it with more many to improve performance. ory to improve performance. Disl requirements are 7.5 MBytes in

# DEC's Spin on Multimedia

in different locations and in some cases, different states, a group of Digital Equipment Corp. software engineers see each other every day - without ever leaving their offices.

Networking engineers in Littleton, Mass., software developers in Nashua, N.H., and their boss, Don Gaubatz, vice president of workstations in Maymard, Mass., consult by talking to video cameras while sharing screens of text and diagram specifications. The interactive, live consultations are made possible by a little-known application, DECspin tele-

Two FDDI (Fiber Distributed Data Interface) networks loop 54 miles between the Nashua and Littleton plants and between the Littleton and Maynard facilities, with 10 DECstation 5000s providing the data transmission power, explained Jack Toto, multimedia marketing manager at Digital

"The primary benefit I get from having DECspin on my desk is I can use it without thinking above it," said Gaubatz, who is used to talking to a TV carnera ed on his workstation. "I can play with DECspin in a very user-orreged way and then feed my reaction to the developers through the DECspin user interface."

Previously, Gaubatz co with his project workers by telephone with his project workers by telephone.

"When we communicate over DECspin,
our conversations are usually shorter. I
think that's because when we talk face to face, the human communication band-width is much higher," he said. "I get the advantage of seeing the functional DECipin right on my desk and the advantage of talking to the other stes without spending the time traveling to

DECspin, a multimedia application created by Digital to speed software development, is being used in the development of DEC multimedia software.
"We use it in-house as an engineering tool as well as to facilitate meetings," said

Toto Gaubatz can dial up engineers, ask questions and share and modify engineering drawings if necessary without having to drive 45 minutes each way between facilities. "In this economic climate, you can't have key personnel wast-



ing that kind of time away from the ing that land of time away trom the development process, he said. DECspin is currently available only for DECstanon 5000s. Toto said that Digital is looking toward providing future ver-sions for other platforms, including 5un Microsystems Inc. and Hewlest-Packard

DECspin is designed to work with several pieces of multimedia hardware, which are included in the price of the run-time license. The hardware consists of a DEC wideo card, a frame buffer card, an audio card and a distribution box. The audio card is built into the Personal DECstation 5000 Models 20 and 25. DECspin loads on each machine participating in the teleconference, transmit-ting live video and audio among them.

The vince originates in the rele-phone handset or headset plugs into the distribution box, which plugs into the

Digital is developing a compression board based on industry standard JPEG (Joint Photographics Experts Group). The compressor will enable images to be The compressor win enables images acceptured, compressed, sent over the net-work and decompressed at their destina-tions. In tests, the JPEG board used with the DEC NS 600 hardware router over T1 lines from Chicago to Boston tra mitted 11 to 15 frames per second as opposed to about two frames per second without compression, Toto said. The frame buffer card and the video card will be included in the JPEG board.

#### WORKSTATIONS from page 24 ments. In comparison, the DECstation

5000/240 offers 445,000 2D vectors/sec and 436,000 3D vectors/sec. Sandoner is suited for two-dimenional simulation and mapping, CASE and logic simulation, the documents

understry Gaubatz said the SPECmark ratings for Sandpiper and Flamingo have not been finalized. We have our compilers maturing on a very frequent basis. Once you get the hardware in place, once you featre out the feeds and enough them

you continually evolve the compilers. \*The compilers right now are in a very fast state of evolution and they interallimprove the preliminary SPEC marks of these thirtee more muck. So we con't can what the SPECmarks will be by the time the machines come out " he said.

#### It's All in the Chin

ITS AIL IN THE Chip
The 644 Makes Criticals 150
SPECINSKS, Kowen as the 2104. No
SPECINSKS, Kowen as the 2104 May
The 1844 May 18

lers from the R4000 because rates 15 VUP (VAX units of lance) instructions, including

#### Pathworks 4 8 1

Continued from page 19 example, that its support for the Banyan Vines network operating system is "coexistence only" right now. And it has still to make a firm commitment to SCO Unix support.

Duntal claims to have breadth of support planned for Pathworks' future. But even product managers within Digital concede that users will continue to be the sudge of whether usting support or future support Pathworks meets their needs for PC integration.

# R4000 Snap-in Upgrades

Commund from near 23 DECstations and DECstation 5000 Model 133; the upgrade for the Model 240 well cost \$4,000

The Personal DECstation family tach currently ranges from \$3,995 to \$6,995 in entry-level, diskless configura tions, features a main memory capacity of 40 MBytes. Onboard audio and the availability of live video input options make these systems capable of running sultimedia applications have two TurboChannel bus slots, inte gral SCSI one RS-232 synchronous/ asynchronous port, and, like the rest of

the current DECstation models, onboard 802.3 Ethernet as well as optional multiple FDDI and multiple 802 3 Ethernet The DECstation 5000 Models 133 and two-dimensional line drawing, suppled

240 have main memory capacities of 128 MBvtcs and 480 MBytcs, respective They feature three TurboChannel slots. integral SCSI and two RS-232 synchronous/asynchronous ports. In entry-level monochrome diskless configurations the Model 133 is priced from \$8,495, and the Model 240 is priced from

\$11,996 According to Richardson, key to the opgrade strategy is the fact that virtually current DECstation hardware, such as graphics options and storage peripherwill work scamlessly with the new

The RISC workstation family was the set of Digital systems to use the 100-Mbit/sec. TurboChannel bus interface, which is also the peripheral interface for future Alpha systems. DEC has promoted TurboChannel as an open interface and encouraged the developnt of third-party peripherals through its Tri/Add program.

Among third-party Turbochannel are network adapter cards, data-ac non interfaces, serial and parallel fine interfaces, IPI (Intelligent Peripheral Interface) disk drive controllers and realtime video interfaces

Turbochannel-to-VME bus interfaces able customers to use inenable customers to use industry-stan-dard VME peripherals with their DEC-

Also, DECstation support for standard SCSI peripherals ensures that a wide mexpensive storage devices can be used with the workstate The entire line of Digital's Tur-

boChannel-based graphics options will go forward with R4000-based systems. At the low end of the graphics line are the MX options, a single-plane, high resolution (1,280 x 1,024 pixels) mor chrome frame buffer that takes up one TurboChannel slot. The TX graphes option was designed for use in conjuncnon with the DECvideo mult options and provides a socket for the

live-video daughter card. This high-resolution option contains a 24-bit true color frame buffer and an independent 8-bit color-mapped frame buffer; it takes up one TurboChannel slot. Another one-slot graphics option is the HX, which has 8-bit planes with x 1,024-pixel resolution. Unique to the HX is a Smart Frame Buffer custom chip that provides acceleration for

#### A key to the upgrade strategy is the fact that virtually all current DEC-

station hardware will work seamlessly with the new architecture.

polygon filling, pixel copy and Boolean Offering a higher level of graphs

formance are the PXG, PXG+ and PXG Turbo+. All implement an advanced graphics acceleration architecture, but with differences in form factor and performance. The PXG and PXG+ occupy two TurboChannel slots, while the Turbo+ is a triple-width card. At the top of the line, the Turbo+ has 24 image nes. a.24-plane double buffer, 24plane Z-buffer and 24-plane buffer for

offscreen storage of permaps.

One uncertainty that remains in the DEC station upgrade strategy is whether ture hardware options will be compatible with the R4000-based work A Digital spokesman said that although all TurboChannel options will physically fit into the older systems, it will be up a the options designers to write the appropriate drivers for the DECstations.

# It's Not a File Server

ne way to begin a description of Digital Equipment Corp's InfoServer network storage device is to say what it is not – it is

not a file server.

"The InfoServer is a unique device that offers the opportunity for LAN users to share SCSI devices," said Mike Lynch, InfoServer marketing manager at Digital. The benefit to Micontools, PC, VMS and Ultrac chents across a LAN is that now they have at their disposal up to 14 SCSI devices they did not have to go out.

and bore

According to Lynch, the differences between the Software and graven the between the Software and Software the software the Software the Software the to based on the Mirrol/AX 3100 processor, offers virtual disk and upe serveces to clients in midulgle envolvements and is optimized for handling multiple reads and seldom writes. In contrast, file servers offer chents a vanery of file-based services, meluding the opportunity to

DEC's Infoserver offers virtual disk and tape services to

and tape services to clients in multiple environments.

share files transparently but only across a bounded. IAN environment. In their irvor, file servers deal equality well with makinghe writes and multiple reads. Underlying the services provided by InfoServer is Digital's LAST-port (Lecal Area Storage Transport) protocol. LAST-port is a protocol developed by Digital that originates the efficiency of

read functions and ensures the heterogeneity of the InfoScreer by transferring data at the block level.

data at the block level.
LAST port was both using an asymthesis of the control of the property of the control of the control of the streetscans between clients and the server aroung a LIVE by humling up and nating the need for clients not send system managers can hang up to 14 different SCSI devices of the indiserver, and up driver, the latticever of the control of the control

To users, the InfoServer simply looks like another SCSI device, another area Continued on page 32



Bill Delhan, coordinator of computservices at Mess Community College in Artzons, uses two Interarvirs (above) to provide virtual disk services to 12 disdess, 386-basel Deworkstations scattered around the college's library. Behind Delhan is



# Speaking with Larry Cabrinety

Larry Cabrinety is vice president of the Video, Image and Print Systems Group for Divisal Equipment Corp. in Westford, Mass. The group is responsible for producing Digital's printers, DECprint Architecture, imaging systems, and X Window and

the lines much crisper. We call it image enhancement "And the MIS manager has full systems control of that ter. He knows when it's out of toner or paper. He can take full control of that printer and get the job done." But is this in the Digital envir

How do you characterize the change nge in your unit as you erved the movement toward We decided three

iust addressing the Digital base of customers. We decided that we had to start offering the customer the lowest-cost solution that gets the job done. There was to be no more of this, because we're a workstation vendor, we want to sell you a workstation. We want to supply text terminals that can put up PC Windows when hooked to a 386 or 486 machine. That's a \$500 seat. Most

mes have not done that. e desktop was the fastest-gre area of computing, and we said to each other, 'Hey, guys, let's try to do it right,' It was part of the restructuring

What's an example of your invest-ing in this approach? "Every network needs a good shared

printer. Nobody can print on a net-work the way we can. We have invested million in software for our DECprint Architecture to print any-where on the network. We have the ability to queue up jobs (with non-sequential priority). We can reroute the job to another printer. We have patented the ability to do end-up image, or printing multiple images on one piece of paper. If you received 10 memos during the day, you can order them printed out on one sheet to take home the iob done. and read. We can reroute the job to another printer. We can deliver bar codes anywhere on the network and

print them out. \*DECprint provides a two-way com munication capability. We printed out a technical manual in Cannes, France, from Westford, Mass., and we knew when the printer in Cannes was out of paper or jammed up. We have the power on the network to do these things.

"The DECimage part of the architecture allows you to print scanner-style images at printer speed. We can produce utions of 1,000 by 1,000 dots per inch off an image produced from a 300- by 300-dot-per-inch engine. It makes



e decided three years ago to stop just addressing the Digital base of customers. We

had to start offering the customer the lowestcost solution that gets

\*DECprint can drive about half of the PostScript laser printers out there. It takes some fine tuning to get it to run on third-party printers - not a lot. But we can't support all printers, just the big runners (established, high-volume printers]. By the first quarter of 1993, we will have DECprint playing on Hewlett-Packard printers. (But Diestal has not set pricing.) IBM's R\$6000 and System V machines will be able to run nters using DECornet by first quarter

We are also aiming to have PCs on Novell NetWare able to make use of DECprint printer services. "SunQuest Information Systems of

Tucson, Ariz., resells our DECornet software on Sun machines Digital used to sell a half-million dumb terminals a year. Isn't that business declining and what do you

see coming onto the desktop in its "There are six million dumb term nals sold worldwide [per] year now, and Digital sells 600,000 of them. We're expanding into the private label, OEM market. Three years ago we decided to go after the worldwide base

\*Digital used to produce ANSI character-eell and graphics terminals. That was it. Now we will do (IBM) 3270, Tektronix 4270 or whatever you want We have VT420 PCTerm that can be run off a multiuser Intel PC for MS-DOS or SCO Unix applications. We'll make a terminal do whatever you want it to do. The terminal market is still evol

ing. The world of the X Window System will take it to a new dimension. X will make the terminal market start to grow again. We plan to run X Window terminals on token ng next spring. We'll have an InfoServer on token ring reding X Window terminals. Not everybody wants to buy a PC for every worket. "The world is chan "The world is changing rapidly. Some workstation ven-dors disavow that an X terminal can be tied to a workstation

but it's going to happen. It lowers the cost per seat."

Digital Equipment Corp. engineer in Westford, Mass., delivered a technical document to a colleague the next Instead of trying to catch the Federal Express pickup, she sent an electronic

file of the document over DEC's internal network to France ordering a printer there so output it. When the printer ran out of paper, she was informed of the interruption by sensors on the machine and she was able to leave an E-mail message for her French counterpart to reload the paper tray in the morning. Once the reload occurred. the printer continued to one prior ity to the technical document and

out. Before his co-workers had shown up for work, the French employee had his document in time for the day's demonstrations. Examples like this are the result of DEC's \$15-million effort to develop DECprint Architecture, a set of networked software prod-

ucts to maximum printer services, according to Larry Cabrinety, vice president of the Video, Image and Print Systems Group in Westford. "Printers had to learn to talk back. They had to tell the user about their status, whether they were low on paper or other con-

job, when they fireshed a job and or Par other things that allow remote printing to be as efficient as local print-ing," said Allan McDonald, DECprint marketine manager

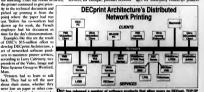
Most printer usage on a network is marked by one-way communication, agreed Angele Boyd, director of print research at the International Data Corp., a market research firm based in Framingham, Mass. \*DEC offers more twoway communication than is typical in other environments. DEC will give the user little cheat sheets - codes that can be used to order two-up printing [multi ple pages or images on one sheet and other special processes, she said. If the printer to which a task is sent is not available. DECprint functions will reroute it to another printer on the net-work and let the user know, Boyd said.

guage within DECprint and is designed to work with Digital-produced printers, and some third-party products that sup-port PostScript, Many PostScript print-ers are not equipped with the sensors anication facilities needed to supply DECprint services, noted Bowd. der the DECprint Architecture

Digital has released a number of prodthat allow users on DECnet. TCP/IP or Pathworks (Digital's PC and LAN connectivity package) to maintain two-way interaction with a networked PostScript printer. DECprint Printing Services, for example, provides network

iob assembly functions and a iob manager. DECorint Service packages offer sob scheduler and print supervisor func

DECprint Service software is current available only for VMS hosts. Digital available only for VMS hosts. Digital plans to migrate the services to Ulerix and other Unix platforms, McDonald said. The current batch of DECprint software ships with all Dugital PostScript printers (such as the PrintServer family of network laser printers) and is available for use with PostScript printers from other vendors. DECprint software pack-ages for third-party PostScript printers



services and printer feedback to users in

"Talking back was always part of VMS systems services," noted Mike Maynard, president of Integrated Management Resources Inc. (IMR), a market research

and consulting firm in Stow, Mass. "Now it is more standard and more graphical in nature. Also, under DECprint, the printer talks back to you at a finer level of granularity.

Part of the architecture outl dards for applications that create documents, clients that accept print requests from applications, and the printers and services that execute a print request. These standard functions are generally implemented in DECprint Client or DECorint Service software. DECprint

are loaded directly onto the printers and are licensed separately.

are licensed separately.

'An example of the extended flexibility of the DECprint Architecture is its handling of DECfonts, a separately licenseable part of DECprint. Users who have DECfonts do not need to have all fonts resident on all printers. With DECfones, the fonts are distributed with the document so that any PostScript printer can print any DECfonts docu-

meot.

"DECprint products take advantage of the richness of the PostScript language to increase the efficient use of the shared printing resource," McDonald said. Nevertheless, selling DECprint requires incing a customer that printers are a Continued on page 32

# Dumb Terminals Remain Preferred Device of Many

move into the future, they are taking on a more intelligent look, offering split-screen capability and looking towards windows functionality, while maintaining the rock-bottom prices contomers have come to expect \*Eighty-five percent of people use nputers for word processing and mail only, so these terminals are not going to go away," said Larry Cabrinety, ying to go away, said carry Cammery, vice president of Digital Equipment Corp.'s Video, Image and Print Sys-tems Group in Westford, Mass. \*Now we are getting to the point where it's

terminals as they are now Besides windowing capabilito add such features as clocks. calculators and mace Many are movine from a character simple dot-matrix base, which would facilitate bit-mapped graphics and pos-sibly color. Digital currently is watching to see if a market will develop for these features and functions, said David Cotton, text terminal business manager, "Color tubes cost more and we need to mainrain a recutouone price advar tage over PCs with color. We

than to lower the perce of the

market," be added Currently DEC's line of traditional terminals includes the VT420 (which replaces all earlier models), the VT420 PCTerm, the VT330+ and the VT340+. The VT340+ a Dagstal's only color terminal. All models will run the thousands of available ASCII and ANSI application packages and do simple line drawings, graphics and spreadsheets. The PCTerm models can run monochrome PC applications as well. Digital is working with the MDOS (Multiuser DOS) Federation to establish a standard for PC terros-

The VT420 PCTerm is a text termi-

As Dioirs's VT dumb reminds nal adapted for SCO (Santa Cruz Operation) Unix and MDOS PCs, as well as a desktop system for accessing PC applications running on multiuser Intel Corp.-based PCs and Units sys-tems. It uses a PC keyboard to access applications running on SCO Unix applications running on SCO Unix and SCO Xenix operating systems and MDOS systems. It provides the func-tionality of Digital's standard VT420 terminal, including single- or dual-ses-sion operation with full- or split-screen viewing and text windowing. Both the VT420 and the VT420 PCTerm are priced at about \$629. The VT330+ and VT340+ offer dual sessions, graphics enier to put more into the terminals



do get requests for color on these terand split-screen capability. The VT340+ offers a 16-inch color moniminals, but at this point it is a noche tor. The terminals are priced at about

\$1,885 and \$2,725 respectively DEC's terminals are now beo mternational in scope with support for a number of foreign languages. They support ISO (International Standards Organization) Latin 1 standard for Western Europe and ISO Latin 2 stars dard for Eastern Europe. "Digital is establishing a market presence for the terminals in the former Soviet bloc countries," according to Cotton. Some Asian languages are available but are not yet in the mainstream and so are not cost-effective, he added.

We have run 10 different la Continued on page 32

# X Terminal

telemarketing representati at a financial services company works from a Diental Formerson Com 2000 X terminal that runs off your department's RISC DECstation 5000. Similar systems are dedicated to customer support, accounting, order inventory and purchasing, all running off Ultro, Unix or MS-DOS hoists.

In the past, the representative would lave had to log in and out of four or five databases to get information, a process riddled with opportunities for keystroka errors. With Digital's VXT 2000 terms nds however twee can have database applications from different departments d heterogeneous hosts displayed as they run simultaneously in war their screens According to Digital representatives

this scenario is accomplished every day by the 20,000-installed base of 2000 terminals currently in use. To function across beterogeneous hosts. second Digital product is needed, the InfoServer 150 network terminal server according to Larry Cabrinety, Dignal's vice president of the Video, Image and Print Systems Group in Westford, Mass. This VXT 2000 terminal family is a

line of nine X-windowing terminals introduced last December, ranging from monochrome, gray-scale or color versions in 15-, 17- or 19-inch monitors. At the low end is the monochrome 15inch, single-box VXT, complete with 4 MBytes of man memory. At the high end is the 19-mech, color VXT 219A terminal with main memory expandable to 16 MBytes. All VXT expandable to 16 MBytes systems are

The monitors' resolution is 100 dots/inch, with a flucker-free refresh rate of 72 hr. A choice of thick-wire, Thin-Wire or twisted-pair Ethernet connec-tions is available. All VXT terminals use the Monf window manager as their local rendow manager.

The CPU for these systems is the

SOC (System on a Chap) - the 10e microprocessor - the standard for the DEC MicroVAX 3000 and DECstanon 3000 families, with a 60-nanosecond clock speed. The SOC is compatible with all available software used on VAX and DECstation systems. The InfoServer150, also introduced

last December, is a speculized terminal

# Digital's 'Universal Desktop Device'

server that acts as a companion product to the VXT 2000 family of terminals. Via a derivative of Digital's standard LAT (Local-Area Transport), the InfoServer150 uses the LASTport (Local-Area Storace Transport) protoco

Storage Transport) protocol.

Via LASTport, the InfoServer 150
offers high network performance by
Offedding host functions on one beserver
to provide automate load balancing
balancing of form from the loses and
unlimited virtual memory for the errainable via demand popting. Additional
options are available, such as the
Bookareafer service, which in the ability
to store large automator unformationed
and displayed on an X terransal, accord-

and unspace of the property of

LAT is the application used:

The VAT terminals, unlike traditional text terminals, which functioned neatly in host-based configurations, are specifically surjected for distributed, client-server computing in multivendor networks.

"We offer total automatic load balancing across the network, via LAST port, which automatically moves the resource load from the host so that it does not bring down the system when resources are heavily used," Cabrincey added.

#### An open system?

\*Digitals compenious will throw stones at the InfoServer, asying that it is a nice concept and that it improves efficiency, but they will say it as not a true open system," said Jack Roberts, principal analyst for Graphics and Displays at Dataquets, a market research firm in San

Jose, Cahf.

But, according to Digital, VMS or other network systems managers who must manage multivendor networks and the Hewlett-Packard, Sun, VMS, Ultrix and MS-DOS users on them, can cussed MS-DOS users on them, can cus-



The YAT 2000 terminal lamily includes interceptions, gray-scale or color versions in 15-, 17- or 19-inch moritors. All YAT systems are expansible to 16 MBytes. The moritors' resolution in 100 data/inch, with a flicker-free refiresh rate of 72 hz.

tom-configure groups of users.
"The VMS systems manager also has

complete systems management condiguration control at his fingerings with our new VXT terminals and InfoServer. Cabinitely added, claiming that competitive systems do not offer that facility.

You can't do that just by putting X on a system and expecting is to be easily configured. With our system, we have virtual unlimited memory, be added. As an example of dedicated configuration capability, Cabrinery said the VMS network manager can configure 20 VXT

network manager can configure 20 VAT: rerminals to be used by refameal support users, 20 for telemarketing, 20 for online transaction processing and 20 for custom mulapile hosts simulateously. Market analysts cited another advanage of Digital's VAT/InfoServer solution: It saves systems management expenses by having one network manager

Matter analyse core another accuratage of Digital's WYTIInfoServer solution: It saves systems management expense by having one network manager at a central location for X terminals or deskops across a multivendor network. The network manager can handle X terminals in a multivendor network of MS-DOS, Unix, Ulerix and VMS systems from one location.

"If you want to see where X is going, s look at someone who is managing 200 to 300 VAXs from a technical support site," said Wes Melling, program director for Midrange Computing Stratgles for the Garmer Group in Stamford, Com.

and west Melling, program director for, Midrange Conjuputing Strategies for the difference of the diff

Worksations are approximately 50 percent higher in annualized systems management costs than X terminals. PCs cost approximately 30 percent more in annualized systems management costs than X terminals, according to Cabriney. Ultimately, Digital wants its VXT 2000 family to become the "universal decision decice," Cabrineys said. It

deskup device," Cabrinery said. It expects to sell 25,000 by the end of 1992, t 40,000 in 1993 and 80,000 in 1994. A 15-inch VXT monochrome terminal with 4 MByess of main memory is priced at \$1,595. A high-end, 19-inch,

with 4 MBytes of main memory is priced at \$1,995. A high-end, 19-inch, color VXT terminal with 4 MBytes of main memory is \$5,395. An InfoServer costs \$6,300, with up to 20 seats per

# InfoServer

where the InfoServer contrasts with file vers. The InfoServer does not impo a file system on its virtual devices. For DOS clients accessing one of the Info-Server's CD-ROM drives that drive will simply look like any other drive (generally, G. or higher). For Apple Computer Inc. Macintosh chents, there is a senarate InfoServer icon provided in the Infomount a volume stood on the InfoSener and it would appear the same as any other locally stored volume

#### Reaping the benefits

One system manager who understands the difference between an InfoServer and a file server and has been reaping the benefits is Bill Delhan, coordinator of computer services at Mesa Community College outside of Tempe, Artz, Delhan is using two InfoServers (an InfoServer 100 and an InfoServer 150) to provide virtual disk services to 12 diskless 386.

around the college's library. All network services to the PCs are provided by Dagstal's Pathworks. The InfoServers are connected to each

other and to a VAX 6430 in the college's administration building via thick-wire Ethernet. Delhan emphasized that the InfoServers do not count on the VAX for any file services. They provide any needed temporary disk services from their cum internal hard drives to the clients over ThinWire Ethernet.

At the 21,000-student college, the 12 CD-ROM drives in the InfoServers are primarily being used to provide read services to the client terminals for such things as reference materials, periodical abstracts, textual information and maes In order to take greater advantage of the speed of the InfoServer, computer service technicians at the college removed

rent CD-ROM disks and loaded them directly into InfoServer memory. \*By taking the search engines on the different CDs off the disks and [putting that searches go a lot faster," Delhan

#### **DEC** printers Continued from page 29

shared resource and that a print strategy can increase efficiency and save money. With low-end laser printers dropping

below \$1,000, few companies have seen the need to implement extensive print strategies. Instead of having a strategy, company MIS directors respond to user demand by buying an additional printer. The result is a majority of a company's nters standing idle most of the time. while the cost of maintenance goes up, McDonald said

Printing with a high-capacity printer, such as Digital's PrintServer 32 (at 32 pages per minute), can cut a company's cost per page. When used with a judicious mix of personal printers, the net-worked PrintServer's ability to charm many of the search engines from the difout 150,000 pages per month makes for a cost-effective print strategy, he said "Printing is not really looked at it

most companies as a strategic issue. It's a tactical issue," said IMR's Maynard. "Until they can't get out a report don't recognize the printers." ort, people

#### Dumb Terminals Remain Preferred Device for Many

Continued from page 30 seously off one bost. This means

could have 10 employees working in to different languages on terminals all hung off the same host," said Cabrinery. These terminals are the lowest-cost display device you can use to communicate in different languages, he added.

Another factor affecting the terminal market is the recently established AlphaWindow standard, which enables windowing capability on text terminals. The standard was established through the Palo Alto, Calif.-based DIA (Display Industry Association), which creates hardware and software standards for display terminals. Digital is a member of

AlphaWindow terminals achieve windowing through a display server in firmware on the terminal itself working with a window manager software pack age that leads on the host computer. The sdow manager drives the terminals and the terminals run the windows. The AlphyWindow standard defines the interface between the window manager and the terminal in a series of escape nces that define the windows and

identify the sessions running in them

The standard is expected to expand to define a standard for graphics-capable Priced in the \$600 range, the AlphaWindow terminals will run all existing character-mode applications ~

While a number of vendors have brought out AlphaWindow prod-

ucts, Digital is taking a wait-and-see approach.

roughly 80 percent of all existing applications without any modifications and t RS-232 serial communication lines. The windowing functions include running multiple applications, transferring information between applications and resiz-ing. Other features are scroll bars, icons and buttons. AlphaWindow terminals can attach directly to a multiuser system

such as a DOS PC or a Unix system While a number of vendors include cumulus Technology Corp. a ar Cumulus Technology Corp. and Applied Digital Data Systems Inc., have brought out AlphaWindow products, Digital is taking a wait-and-see approach. The company declined to obscuss us spe-cific plans, if any, to develop such

\*AlphaWindow terminals are in ou plans because wandowing is the way of the world It's just a question of timing. said Cabrinety. \*People have a lot to learn with regard to making AlphaWindow terminals and it might not pay to be among the first out with such machines, "Cotton added.

With 5.5 million terminal devices sold last year (according to International I Corp., a market research firm based in Framineham, Mass.), dumb terminah appear to remain the smart choice for a multitude of customers. "These machines fit in nicely," said Cabrinety. They give users all the basic applications, are simple to operate, inexpensive, and work with any kind of a host on any kind of a network. Realistically, tradi of this decade." mals will be around the rest

# DEC rolls out services

#### Woos users with DECAdvantage integrated platform

ping now. A sample entry-level con-

tion of a system man

cease costs \$1,300.

By Melinda-Carol Ballou

Digital Equipment Corp. is already taking up the "Solutions Provider" banner from Chief Executive Officer and President Robert Palmer by announcing new services. Earlier this month, the firm released

DECAdvantage integrated hardware/soft-ware pistforms for intel Corp.-based servers and revealed that preinstallation of NetWare v3.11 is an option for the Application DEC 400xP server. DEC also began shipping Pathworks for The Santa Cruz

Operation's SCO Unix VI.0. "The most interesting thing to me is the sckaging and factory installation of Net-Ware and other applications because those are the kind of services which are in wide demand from customers, regard of whether they are small or large," said Bill Bluestein, an analyst at Fren search Inc. a market research firm based in Cambridge, Mass.

DECAdvantage platforms are certified to run on DEC's Application DEC 400xP. Application DEC 438MP and DECpc 400sT intel-based servers. They include preted hardware — application packages, ittles, tools and networking software to make the servers easier to install, inteste and operate, DEC officials said.

"DEC is trying to leverage its service on buities ... by bringing servers into hig PC networks and offering good support, said Lou Brentano, an analyst at Computer Intelligence/Infocorp in Acton, Mass. ere's a hole right now in the PC arena re are products to integrate [dispa rate PCs] and networks, but users need

meone to service it all." Brentsno described a situ ompany — an eight-node site — where two out of four printers ceased functioning

sen a new printer was brought in. What if our site had been an entiw and all the printers went out? You someone you can call," he said.

orchasing the preinstalled NetWare on will save one or two days for those turing the system, depending on the lexity of the network. Brenta The precentistered DECAdvantage servers can be a real time and heads che saver thanah he offered one exwest in his assess. it: "What I don't know and the market will have to judge is how flexible the prefiguration means are going to be and ther they will be flexible enough to

meet the needs of a banch of users."

Some analysis questioned DEC's move to support Pathworks running on SCO Unix. DEC has as much said that they will jump on the NT bandwagon with Pathworks. And then what will happen to the SCO husiness other than to go away quietly into the sunset?" asked Peter Kastner, vice president at the Aberdeen Group, a market search firm based in Boston.

But the Microsoft Windows NT-b port the anarous visions of the SCO platforms have an installed base of more than 300,000 users, making this current fo-cus on SCO Unix an intelligent more for DEC, according to Brentano. "The NT

# Accelerator boosts IBM workstations

Legato Systems, Inc. in Palo Alto, Calif., re-cently agreed with IBM to develop and market a version of Legato's Prestoserve accelerator card and software for IRM servers are a ways off, and it mak to make use of the good intel server, which they now have available," he said. The DECAdvantage products are ship

ager Ranga Ranga

System (NFS) servers. Ve croevetens, Inc. and Digital E ra. NF8 servers were inti and 1990, respectively. The pr time by 50% by overcoming write



#### SMARISIZING

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Most IT professionals tell me they would prefer to work with a strong network integrator rather than buying from many independent product suppliers. And yet, they buy bridges, routers, adapter cards. smart hubs and network management, etc., from dozens of suppliers. Why? Because they equate picking an integrator with having to settle for second rate technology. The only way out is to buy networks in pieces and shoulder the nasty job of integration alone. Time-out! At Ungermann-Bass, we don't think choosing between the "Best of Breed" and "One Stop Shopping" is a choice you should have to make. 
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# CW nears migration goal

migration to a Unix-based client/server sys-

Ry Marytran Johnson

The worst is over now - or so we have

And one result of Computerworld's merry march from outdated, proprietary systems to cli

ent/server computing is in your hands. Literally, This week's issue showeases our redesigned behind it. The entire publication is now produced under Ates. Inc 's new Links species of its Work. group Publishing Software, which rups on a pair

RISC System 6000 Model 530 servers While a more same group of people might have set aside 18 months to accomplish a mission-critical conversion project and a complete redesign Computerscorld's management chose Com-dextFall '92 as the do-or-die dendline for both That meant accomplishing everything in one

cally stressed-out year. My staff is completely stretched, but we're lown to the wire and we will be done," said Linda Nelson, Computerworld's information systems director. "Any problems that turn up now will be

minor and fixable A recent trial run of our new design with a nelect group of subscribers yielded generally posi-

#### Built-in flexibility

The basic format of Computerscorid's pages has been altered so our layouts can be more easily varied, which opens up design possibilities that ave our art department positively glddy. Even the colorful little icons, which jazz up the

ook of the pages, are crafted for quicker deci phering. Also, the new system will allow us to save a day or more of paperwork shuffling by al-lowing copy editors to produce text boxes on their ns rather than sending that work to

includes 50 IBM Personal System2s and IBM closes from DTK Computer, which on the report ers' deskions will run Microsofi Corn 's Windows 3.1 and Atex Writer software, based on Xyquest. Inc.'s Xywrite nackage. Although most of the manes are installed, staff training for the report-

ers will not be completed until mid-December In the meantime one Digital Equipment Corn pop ter minimum

eer are linked to the DC-8000s over a common Ethernut back-Atex provided a spe-

cially written Laty daemon for the AIX Unix-based operating em, which moni fore the old system and fers stories to the RS/ 6000 servers for retrieval by the copy deels That was and transition tool that

ducing the redesigned pages

made the mid-November conversion deadline orkable, Nelson explained. The copy editors are 100% up and running on the new system — a critical milestone for pro-

adad day dillar

"Our major goal for the next few weeks is to et through this and keep our sanity," said Exec utive Editor Paul Gillin, who recently gave the copy editors sweatshirts labeled "Hurricans Ater 32: The Sumines Managers said they appreciated the straight

talk they got from IS. "Linda always presente this to us as a difficult, painful process, and she mys kept as informed," Gillin said. "One of the hardest things to avoid is too much

timism," he added. The demos that vendors show you look really spiffy, but they're usually an order of magnitude

While the road to client/server systems has been recitier than the managers expected, there were oever any catastrophic data losses. Nelson pointed out. "We've wiped out the data on the backup server a couple of times, but we were always able to receive - from either the release server or from the last backup tape — without impacting the users," Nelson explained.

One remaining noftware gap involves the works under DOS 5.0 but not Windows. Alex and Xywrite are working to resolve that new 'One of the problems of working on standard platforms is that

CW chief copy editor Catherine Gagnon (left) dore to supply some and IS director Linda Nelson coordinated mesportion of their apolitems, design and copy flow under tight edit tion." Nelson said In this case, Xywrite needs to make a few adjustments to its software to enable it to run under Windows

often the vendors have to rely on other yea-

Overall, Atex has really come though for us in a hig way." Nelson said. Atex supplied its most knowledgeable technical expert, Dora Jeffers, who practically lived at Computerworld during the conversion and was on hand as system bugs

One nerve-racking prospect still on the horizon, however, is the possibility that Atex's parent company, Eastman Kodnk Co., will sell Atex. "I'm not feeling comfortable about that, but Khdak has said they won't sell Atex to a competitor who then

shows the software," Nelson said.

Even if that happened, however, there are contractual provisions in place to assure Computer-world's access to the Atex source code and conwing support, she added

At a glance

# Microsoft picks copper

CDDI gives the speed of FDDI without the cost of fiber

# Ethernet salers

of M Con

B"it was an easy decision," Dave Leinweber, senior manager of corporate networks at Microsoft Corp., said about choosing Fiber Distributed Data Interface (FDDI)

By Lynda Radosevich

and that he would save between \$2,000 and \$2,500 per on using FDDI over copper rather than fiber. The savings included the price of adapter cards.

Copper Distributed Data inter

face (CDDI) "gave me the speed of FDDI without the cost and support frunning fiber to desktop." be said.
And the CDD adapter card wound up being one of the fastest we test-Since 1959, when Leinweber installed an FDDI backbone made by

Concernant Base Inc. he had planned to install PDDI Extended Industry Standard Architecture adapters in file servers and hirthlevel workstations someday namely for Microsoft's software engineers

whose development work was sure to tax available bandwidth. This fall, while Leigwober was evaluating desktop FDDI technol-

ogy from "all the major vendors," Crescendo Communications, Inc. in unnyale, Calif., came out with adapters that use FDDI transmission protocols over copper wiring. eber tested the Crescon cards on three workstations and found a 300% boost in throughput

That's at the low end " he said I'm hoping to get higher through put as we install servers that sup port symmetrical multiprocessing

Over the next eight months, Lein weber said, he plans to install some 200 copper FDDI stations using high-quality Category 5 data-grade unshielded twisted-pair wiring that was prefastalled in Microsoft's main engineering building. The first stations will be operational in about three weeks, he predicted. lostalling PDDI over copper be-fore standards are published does out worry Leisweber because, he

said, he attended standards meet-ings and thinks standards will be picted next year. Once stan-is are established, he will move more than half of the company roughly 5,000 development engi neers to FDDI over com

Gignswitch on its way

Planning for growing bandwidth needs is an ongoing process for Leinweber. He said that adding

on the fiber backbone will test its sits. Rather than breaking net works into smaller subn

said be plans to deploy a DEC FDDI Giguswitch by next summer. The Gigsswitch - a 3.6G bit/s switch that DEC said it expected to ship in the first half of 1963 — inciudes FDDI ports. Using switching technology similar lo Asynchronous Transfer Mode (ATM), the Gignsuch will interconnect PDDI not-rics, switching from one PDDI rt to another port. Because II is a true matrix switch, the actual band width is the sum of all the con-

ports, he said. Leinweber's plans include using ATM for metropolitan or wide-area network connectivity. He said be does not expect to move ATM to the sktop in the next five years because be does not see the technol ogy taking off. He is also watching 100M hlt/sec. Ethernet develo ments. "The important thing is that CDDI solves our problems today. I can't base our overall strategy on Why combine a number of SPARC stations,

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commands whenever you choose. Excel, on the other

Corporate Computing (8/92) wrote that "for the experienced, 1-2-3 database

		1-2 3 Classic	
A: A1:	Range Copy	Nove Pile Print Graph Data System Ouit	
Global	Insert Delete	Column Erase Titles Hindow Status Page Hide	

hand, only supports 80% of 1-2-3 Release 201 commands And has no support for releases beyond.

What's more, only 1-2-3

for Windows offers you a better compatibility bridge from DOS to Windows And unlike Excel, 1-2-3 can read and execute any 1-2-3 for DOS file, style and macro.

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user, 1-2-3 for Windows with DataLens is the front-end tool of choice." Excel's data access capabilities rely on a third-party product with limited relational canabilities.

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# Lotus 12-3 for Windows

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Racore Computer Products, Inc. has intro-duced the M8110, M8111 and M8112, 4Mbyte 802.5 Token Ring adapters According to the company, the M8110 is a 16-bit XT/AT bus interface that is comble with IBM AT or compatibles; the M8111 is Micro Channel interface is comnatible with the IRM Personal System? or compatibles; and the MS112 is an 8-bit XT/AT bus interface that is compatible with IBM PC/XT, AT and compatibles. Each of the adapters operates with Type 1 shielded cable and Type 3 unshielded cable with an optional media filter and con rus to IEEE 802.5 and 802.2 Token Ring

The adapters support network environ-ments including Novell. Inc. NetWare 286. duced Alice-SPC JPEG Image Compres-

386. IBM PC Network and Microsoft Corp.'s LAN Manager, among others,

The adapters start of \$105 >Racore Computer Products 170 Knowles Drive Los Gatos, Calif. 95626 (4081374,8200

#### Workgroup software applicat Telephoto Communications, Inc. has intra

sion and File Conversion softwar The software was designed for Sun Mi-crosystems, inc. SPARCstations and compatibles. The Alice-SPC software can be used for archiving, retrieving and displaying full-color and gray-scale continuous topo imense

It supports all of the popular pixel for-iats and image file types, the company re-

Cross-pisiform connectivity is offered, and Alice-SPC operates in SunOS, Solarie and Open Windows environments. Sunport is provided for eight- and 24-bit color and gray-scale adapters as well as the Sun-Roster and Tag Image File Format for-

Alice-SPC costs \$495.

➤ Telephoto Communications 11722 Sorrento Vattey Road San Diego, Calif. 92121 (619) 452,0003

Systems Union, Inc. has introduced Version 4.0 of its SunSystems accounting and financial management software

The software includes a new gray user interface that runs in M Corp.'s Windows 3.1 and IBM's OS/22.0 en-vironments. According to the company Windows and 05/2 users operating Versi 4.0 accounting modules can run multiple screens and perform multitasking with

drop-down menus.
Interoperability is provided across plat-forms including Novell, Inc. and other leading local-area networks, all PC operating systems. Unix and a number of reduced instruction set computing systems such as Hewlett-Packard Co.'s HP\$000 and IRM's SC System/6000.

Pricing begins at \$1,700. ➤ Systems Union 10 Bank St. White Plains, N.Y. 10806

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Shiva Corp. has introduced NetModem/E

for Windows for Workgroups.

The product is a remote netw Workgroups operating system Version 3.1.
It was designed to enable users to more easily access their workgroup resources

from any standard telephone line.

NetModem/E is a dedicated hardwa device that plugs into the workgroup's Ethernet cable and a telephone line. It does not require a PC, keyboard or display screen. Connection is available for rem users by using a standard mode Remote users receive all of the same ea-bilities offered by the Windows for

Workgroups operating system, including Microsoft Mail, Microsoft Schedule + and file sharing. The product has security features that include passwords, dial-back phone numbers and individual user names, according

to the company.

NetModem/E for Windows for Work groups costs \$1,890.

>Shira

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It's an SNA gateway. (That's nothing new.) It's also a local router. (Excuse me?) It's an SNA gateway and a local router (You mean in one product?) in one product. So it provides you with two solutions in one: (Let me guess: the functionality of a gateway along with the performance of a router.) the functionality of a gateway combined with the high-performance of our ronter's SPARC processor. (I was close.) Since this new product (I think it should be called a gateway-router.) performs two functions at once, it offers unprecedented levels of administrative convenience and manageability. (But does it access multiple LANs?) It also accesses multiple LANs, including Token-Ring, Ethernet, and LocalTalk, (Ask a stupid question...) and supports mixed PC environments such as Windows, Mac, and DOS, (Holy Toledo.) Naturally, our Netway gateway-router (Hey, that's my name for it.) can route Noveli IPX and AppleTalk protocols, (And?) and comes complete with powerful 3270 services like terminal and printer emplation. (I wonder who came up with this thing.) As you might have guessed by now, the company behind this revolutionary product is Avatar, (I should have known.) leaders in SNA connectivity for over a decade. (Must be about time for the obligatory 800 number.) For more information, and our free "Gateway-Router Guide to Network Manageability," send in the coopen or call 1-800-AVA-3270. (A free gateway-router guide? You must have read my mind.)



#### Router rivals unveil 3-phase ATM plans

By Josnie M. Wexler

Amid the Asynchronous Transfer Mode (ATM) statement-of-direction blitz, the two leading router yearlors inst month sketched out plans for evolving their customers to high speed switched net-

works based on the multimedis-oriented

Cisco Systems, Inc. and Welffeet Communientions, Inc. both isstrategies, with Cisco's culminating in an ATM network interface card for its routes in early 1994 Wellflood went a step further by committing to intograting an ATM switch into its high-eed Back-Node router

over the next few ed plans to leverage its gigabitbackplane Backbone Node for ATM switching are more in some with statements made to Commuterworld by the presidents of both Wellfleet and Cisco in June that the companies were considering extting into the ATM switch business

Cises, however, said recently that clude evolving its Switched Multimenubit Data Service network access device to an ATM version in early 1963 - do not necessarily represent its complete ATM strategy.

become popular, they will become part of Circo's strategy," a company

Cisco's Intentions with ATM are important to customer Lehman Brothers in New York "because we expect in the next couple of years there will be workstations that recuire ATM bandwidth in bohs and contern " raid Victor Ducherul co. nior systems analyst. He said that "we don't need all the Cisco ecifics vet." he would eventually e to see ATM switching within his

> tron Systems. Inc. wir-What kind of pertuo sesses Ulm como

Systems, inc.'s and Welffort Communica-tions, inc.'s ATM plans. of the router if it does not incorporate ATM sovitching at some point?" he wondered. Clace expects to pro-ride an ATM nativari Weillieet's stated ATM intentions are a face card for its

step abend of Cisco's, with its Phase 1 for an external ATM access Most says it will go device corresponding to Circo's Phase 2. a step beyond rival Cis-co by integrating an Willfleet's Phase 2 plan for an ATM inter face maps to Cisco's

> nitment to an internal switching architecture "belos us plan for the Welffleet router to coninue to play a part in our network infrastructure," said Ameet Patel emerging technologies analyst at BASF Corp. in Parsippany, N.J., and

president of the 80-company Welllent User Groun With its ATM switching capabili ties. Wellfleet will likely compete di-rectly against the ATM switch vendors such as Adaptive Corp. and Fore Systems, Inc., noted Fred ins, program director at

Gartoer Group, Inc., a consultancy Router rivals, page 102

# IBM to support frame relay, ATM technology

Forum during the Interop '92 show, El Hancock, general manager of IBM's Net-working Systems Division, said "a full complement of frame-relay products "will be available from IBM by the middle of next year. This full, IBM announced frame-relay switching capabilities for its 3745 front-end processor, as well as the Route Xpander 2 eard, which is said to convert an OS/2-based Personal System/2 work-

station into a frame-relay gateway for Token Ring local-area petwork clients Frame relay is specified to run from fractional T1 speeds to 45M bit/sec. (T3); SMDS from 1.5M bit/sec. (T1) to 2.5G bit/sec.: ATM from T3 to 622M

bit/see, and it is said to be more suitable than frame relay for supporting voice and video trans-

Coming in the next 18 months, Hancock said, are frame-relay products for IBM Application Sys-tem/400 and RISC System/6000 platforms. IBM has announced plans to put frame relay on the 0611 router but has no plans to do the same with its traditional Systems Network Architecture (SNA) controller, the 3174. Hancock said.

In the shorter term, IRM said it intends this mooth to announce products that deliver multi-media over integrated Services Digital Network (ISDN) links, to Token Ring LANs, Hancock said.

at frame relay is easier than SMDS, causes less ions on the network and dees not requ speeck told her Frame Relay Forum andiene We are spreading frame relay across our a uct set," in preparation for the higher speed ATM

neock was less specific about IBM's ATM plans. The vendor is "walting to see carriers" deployment" before deciding whether ja to roll out a campus ATM switch lattis. or a wide-area network switch as well, sh said. IBM will not necessarily put ATM or the 3745 front end, Hancock said. Also

decided is whether the vendor will build its corn ATM custich or course it and to a third as an she added

IBM is also working on Advanced Peer-to-Peer letwork Plus (APPN+), an updated version of its cer-to-peer SNA protocol that will be optimized or broudband network protocols such as frame elex according to Rick Melice, manager of comunication systems architecture and develo ent at IBM. APPN+ will be a leading member "the next generation of routing protocols" th will provide high-speed, intelligent routing of net-work transmissions. Melice said. APPN+ will preserve customers' investments by routi ranumissions from devices that etill use of work protocols such as Transmission Co otocol/Internet Protocol and SNA, he added

bit/sec. APPN, which will support ATM, Me said. IBM is a member of the ATM Forum and is working with standards bodies to develop a silicon implementation of the protocol, IBM spok ople said. In keeping with its promises to make its network protocols open and standardi 'IBM intends for APPN+ to converge with the ATM Forum's work on a routing protocol," McGee

# NY agency to add LAN connectivity



SEW YORK

CityNet, a 4-year-old, leased line, IBM Systems Network Architecture (SNA) network that services 85 New York City agrencies and area data centers, is moving on to the next stage of its cies and area data centers, a morang on women development: a hub-router configuration, that will enable a hardroning population of local-area network piers to access computing resources anywhere in the greater New York area.

"About two years ago, we decided there was a LAN explo-

sion in agencies and areas," said Pat Carragree, assistant commissioner of network systems at the City of New York's Com puter and Data Communications Services Ages

The current CityNet eacompasses some 50 to 60 wiring cep ters made up of 1BM 3745 and 3720 front-eed processors con inals, printers and PCs Howelt, Banyon LANs.

dine 2.0001 to grow to 600. +12 | Ali nestoreis

pected over T1 leased lines. The network has saved the city more than \$36 million by consolidating a hodge-podge of dial-up and lessed-line links used by the agencies into a high-speed backbone that provides users with access to 25 IBM and IBM-compatible host data centers.

However, the current configuration does not provide a way to

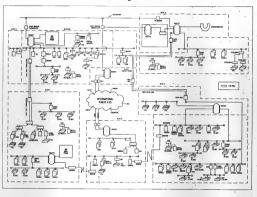
interconnect LAN users or to support the growing need for distributed applications and electronic-mail exchanges in all five boroughs, Carragee said. Right now, all LANs installed in the boroughs are stand-alone, he added

the corrugges are issue-asset, se asset.

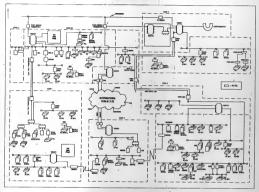
A request for proposals, formislated over 18 months, we out hast upring. Needed is a way to interconnect approximate 400 non-SNA sites, expected to grow to 600 sites by the tin the project is finished. Responses are still being evaluated.

The design libe city has chosen is a combination but as

# Perception.



#### Reality.



#### (We should talk.)

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## LAN, IBM shops team up to link SNA, Token Ring

Ry Joseph M Worker

if there is a trend in local-area networking communicate today to shall Asymphosic Transfer Mode (ATM) rollout plans it would be efforts to allow users to merge IBM bost-oriented Synchronous Data Link Control (SDLC) devices onto Token Ring LANs, which are likely to be components of a multiprotocol backbone

Last month, for example, router vendors Wellfleet Communications, inc. and Proteon, Inc. both announced that they will resell SDLC-to-Token Ring protocol conversion devices from Netl Ink too In Deleich N.C. The conversion process allows SDLC devices to appear to both the network and the host as if they were natively LAN-at-

Communications, Inc. is expected soon to see that it will acquire NetLink competitor Ring Access, Inc. in Cupertino, Calif., to gain the conversion technology. Meanwhile, Cabletron Systems, Inc. an-nounced at Networld Dallas '92 last month

#### Router rivals unveil 3-phase **ATM** strategies CONTINUED FROM PAGE 99

ford, Comi. He added that if Claro. ends ATM development after the interface stage, its routers could eventually become feeder nodes into Wellfleet ATM back-

#### ch partnership The Cisco Welffleet annu

on the beels of a strategy outline by Proteon, ine, which said the vendor would team up with business partners - whom analysts peg as likely to include Motorois/Codex - to develop a high-performance ATM switch that spans the local and wide areas

in 1995. Meanwhile, Proteon will add an ATM is terface to its high-end router in late 1993 and in 1994 plans to deliver an ATM-compatible integrated tub-based router A hub-based ATM switching module is desirable to the user community, which is

erenting hub-centric networks. Patel acknowledged. However, he said, an outding question is whether to route with in the hub. If not, and "you have 20 hubs eding into a router, the router must handie higher speeds," an afforded by ATM McClimans said he anticipates a "big ash during the next 12 to 18 months for

ATM in campus networks. Beyond that, he said he sees wide-area ATM services unfolding during the next two years, and "in five years, ATM will truly give Ethernet, Token Ring and FDDI a

run for their money."

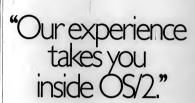
module for its smart wiring bubs Last March, 3Com Corp, said it w roviding a stand-alone SDLC-to-Token Ring converter via a similar partnership.

eific information or delivery ver, Edgar Maari,

3Com's director of business development, said the firm

leves the conversion respe "higher performance and better IRM NetView m when performed in a stand-alone device strated its own SDI Can en Ring tech

nanies' expertise with IRM technology



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### EO communicators herald new way of computing

The name EO, Inc. sounds like it could be the chant from a signature song for some Los Angeles band. But the company means all business, and it believes its new class of communication devices will begin to create what some call a new paradiem of com-

It's a whole new ballstone, similar to what happened when we shifted from the minicomputer to the desktop micro." Mark Cummings, analyst at SRI International. Inc. in Menlo Park, Calif., said of the 440 and 880 model personal communicators

EO introduced recently The same shift comes from the comm s-intensive nature of EO's products. This could lead to users' currying them around and maintaining contact with their home office systems at all times as well as being able to move data in true real-

the 2.2-pound 440 and the 4-pound. notebook-size 880 — represent a break from the desklop environment, which will

likely slow their adoption The new products break with desktop computing in several ways: They are based

Brief

ServicePoint bought out Network Computing, Inc. in San Jose, Calif., has acquired Service-Point Development Corp. and inted the ServicePoint automated help desk product into its LANAlert system management product suite All employees at ServicePoint will be ed in their current positions Network Computing said BT to expand dial services

on a version of Ge Corp.'s PenPoint operating system enhanced for better com cations they use ATA/T's new Hobbit reduced instruction set computing (RISC) essor, and their emphasis is on com-

the first of a different species of systems. said William F. Ablondi Jr., an analyst at BIS Strategie Decisions in Norwell, Mass. At the same time, he said, his interest lies more in EO's potential than its present, in part because its commo are currently outstripped by more conven-tional products, such as Compaq Comput-

erCorp.'s new implem Applysts also said EO. Apple Compute Inc.'s RISC-based Newton and other prod ucts to be in this class give no elear indi-

cation of how they will really be used.
"We don't know yet what the new para three-step process to go through -- denial then a phase where we implement the old

paradigm with new computers, and then fi-nally explosive growth, which is discovery of new paradigm." Cummings said user com ning to step into Phase 2.

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will enable users to realize through put increases of up to four times when compared with 2,400 hit/sec. Novell tool for Ethernet

dial-up. BT said.

BT North America, Inc. has an-nounced a multimilion-dollar plan to expand domestic and internation-

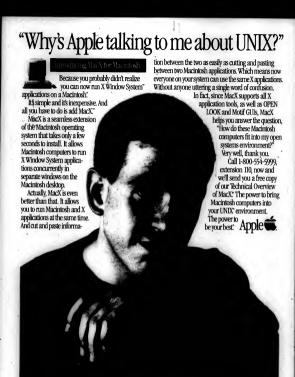
nidial services armosting enough of 9.6K hit/sec., to 329 additional

U.S. sites during the next two years

up from 72 locations today. This

Novell, Inc. has announced a Micro soft Corp. Windows-based applica-System platform for centrally man-aging Ethernet wiring hubs that con form to the Hub Management Intere standard. The application is

PeterCerl Vis, Discret and American Survey compant. Priors to the health spitistic below. housing and health. Company belows be., 25 Der beet, Company Anna and Anna



### Crosstalk for Windows 2.0 debuts

ALPHAGETTA OA

Digital Communications Associates, Inc. (DCA) will roll out an applated version of Crosstalk for Windows asynchronous

tions software later this Crosstalk for Windows 2.0 adds now ter

### LAN connectivity

CONTINUED FROM PAGE 99

er that will be installed at 12 second ic areas that have the highest co tion of non-SNA traffic, Carragee said. Those areas would include a geographic eres such as Parent Hills and a cies, such as the New York Housing Au-

The hub will combine a bandwidth man-ager, which will allocate channels on a Ti link among LAN. SNA and asynchronous devices, as well as fax and imaging dees, Carragee said. The router will provide interconnections for various agencies' LANs, while the X3/X25 packet nbler/disassembler will support chronous systems such as Di Equipment Corp. minicomputers. A 3745 front end attached to an IBM host will coordinate the SNA traffic as a Communications Management Property

Carragee's group evaluated the idea of using SNA front ends to support LAN traf-fic but concluded that this design worked best in terms of guaranteeing service for

existing SNA users, be said. New York City plans to migrate its network to IBM's Advanced Peer-to-Peer Network (APPN) sometime after IBM VTAM 4.2. NCP 6.2 software becomes available next year, Carragee said. All front-end pro-cessors will eventually be APPN nodes, but we expect it to be a long, complicated mi-

gration," he added.

Moving to peer-to-peer SNA will be less of a leap for the city given that it is already try networking ov SNA backbones that link more than 160 IBM Application System/400s. The city began using IBM's low-entry networking Type 2.1 as each as it became contlable arragee said.

New York City is currently committed to upporting 11 protocols, including IPX, Pransmission Control Protocol/Internet Protocol, Banyan Systems, Inc.'s Vines, frame relay, X.25, Open Systems Intercon nect and Digital Equipment Corp.'s DEC-

The contract has yet to be awarded, Carragee said. The award is scheduled to be made at a public hearing next month.

The city uses IBM's Officevision but only as an E-mail platform for IBM VM systems, Carragee said. E-mail products from Banyan and Novell, Inc. are also used, as are CC:Mail and other E-mail products, which speak to each other over the SNA backbone using LU62 with SoftSwitch Inc's Gateway performing connections and trensletion

cols, DCA's scripting isaguage and sup-port for Microsoft Corp. Windows 3.1's tiple Document Interface. Pricing is set at \$195; \$40 for users of previous ver-

elease 2.0's support for Multiple Docu-t Interface lets users open and run

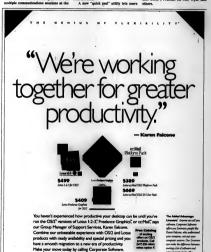
dows. Users can hide, resize and red the session windows to irons. A her at the ently used functions -

A new "quick pad" utility lets u

here on an on-er

otocols give use nes (FTTERM ac

INDSFILE), by in boards (ANSI a ZMODEM) and VAX mis computers (Dig Lal Equipment Corp. VT emulation and Kormit). Terminal emulation support in cludes DEC VTS2, VT100, VT220, VT320 IBM 3101, FTTERM, HP-700, West at



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### **Enterprise Networking**

Frontier Technologies Corp. has intro-duced Surger-NNTP for Windows. The product was designed to enable users to access network prevs from a Microsoft Corp. Wind Beard on the Vetwork Very Transport

Protocol (NNTP), Super-NNTP provides client access to NNTP Servers that are loented at most computer centers. The product is used in conjunction with the company's Super-TCP for Windows 100% Dynamic Link Library Transmission Control Protocol/Internet Protocol connectivity software and offers a Local NNTP Server feature designed for custom filtering of incoming information, according to ➤Frontier Technologies 10201 N. Port Washington Road Mrouge, Wis. 53092 (414)241-4555

### Electronic data interchange

System Software Associates, Inc. has introduced EDI-SET an electronic data interchange (EDI) product. According to the company EDI-SET was designed for developing trading partner

specific interfaces between an application database and EDI messages. With EDI-SET, users can develop inbound and outbound message interfaces via "intelligent" file and field mapping to any IBM Application System 400 application databa company reported.

The applications processing logic is cop led to the interface program with an intelligent-copy feature, and EDI-SET automatically posts EDI messages to the rices range from \$4,900 to \$50,000.

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### Catawaya routers bridges Cascade Communications Corp. has intro

duced Version 2.0 of STDX frame-relay New features include the RFC 1294 Gateway, a software-based function that permits multivendor routers that are incapable of supporting frame relay to connect to a frame-relay network, according to the company: A 30 Bundle E1 I/O module provides up to 30 High-Level Data Link Control data links on a single E1 line and supports E1 or fractional E1 interfaces, the

A six-port Universal module is also of fered that supports connections to a variety of popular synchronous interface con-

Prices start at \$2,000 Catanda Communication Unit #4 239 Littleton Road Westford, Mass. 01886

(508) 652-2600 Computer Mail Services, Inc. has intro uced the M-Bridge gateway for Unix-to-MCIMell

According to the company, the product resides on a dedicated Microsoft Corp. Windows-based PC gateway. Support is provided for both message attachments

and return receipts. The product includes an M-Bridge nick-name facility that offers Unix users more access to the more advanced capability of MCI Mail, including sending messag in nonelectronic recipionts through fax and telex and the capability to access preregistered graphics such as signat and letterbends A primary license costs \$4,995.

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still think of TCP/IP as a "non-IBM" standard, we offer as many TCP/IP products as anybody.) So if you have a DEC\* system in one department.

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### DB2 conversion simple if you're prepared for it

rting to the most recent e of DB2 is pretty much a revenue of D82 is pretty much a simple matter, according to some users who have done it. But that is assuming the shop is up to date in a summary on its maintenance releases and is using the catalog correctly. Otherwise, the job can be much more painful.

ed the most recent DB2 reiense, 2.3, in September 1990 and delivered it in Decem

ber 1991. About half of the 6,000 or so DB2 customers are using the current release an-

alysts said. Spierel, Inc. finished converting its major production applications last March, acor to David Beulke, senior soft-

ware specialist. After some initial bugs in the beta-test version that were fixed in the general release, "everything went smoothly," he The company has some 80G bytes of data on Release 2.3, Beulke said.

and has policed a performance improvement of about 5% to 10% with

Although Spiegel hit no major snage once the general release was available, other shops have not been so tacky. The problems have not been because of the software but be-

implemented all of the maintenance tapes associated with Release 2.2. Another issue is how people have implemented the DB2 catalog in Re-

to what they were doing in 2.2, then 2.3 can be difficult because errors will come up," said Shaku Atre. president of consulting firm Aire, Inc. in Rye, N.Y. "You have had to enter things into the catalog properly in 2.2, with business rules and ref-

erential inferrity Assuming all that has been done correctly, "2.3 is not a major problem," Atre

Bi-Lor, inc., a retail grocer in Mauldin, S.C., is going through the conversion now to try to tap into some of the per-formance gains from Release 2.3, according to Don Parrott, software

systems specialist. They are finding it "a pretty subial effort," be said, "because we weren't up to the current mainance level. We have had to bite

the bullet and put two years of main Generally, Parrott said, "we like to keep more current, but we're run-ning lean and mean on staff, and

some things just got put off." ome things just got put out.
Other than that, he said, judging rom the other users he has talk to, "it's pretty cut-and-dry.

### Life after statistics

SAS Institute goes beyond original offerings, challenges Cohol

By Gary H. Anthes

SAS: It's not just for statistics anymore.

in fact, it has been quite some time since prod-ucts from SAS Institute, inc. were solely for statistical applications, but some people just don't get it, the company complained. Founded by statistics professor James Good-

company had just one prod-uct in 1976 — the Statistical Analysis System for IBM MVS mainframes. That MVS mainframes. That product survives today in the form of a SAS/Stat. one

of 28 SAS products in 5.5 million lines of source code for 20 operating systems. SAS now says it is in the on systems (EIS), spread-

ts, data entry, project

ers grew, they begs lities — reporting. phies and general-purpose data processing abilities," Goodnight said. Now, he said, SAS can do aimost anything, and at the SAS in in Cary, N.C., it does (see story page 117). While SAS has deployed its own produc er and deeper than most of its 3 million o ers, some users have found that the SAS System

3 521 M 33,766 1.428 s/ms 7 393 2.896 seres 15 100

sor internation Delivery can replace much of what has traditionally been done in Cobol, with a big boost in programmer productivity and a mod-est — if any — penalty in processing efficiency. Associated insurance Cos. in Indianapolis has

an array of SAS prod frames and DOS-based PCs. Actuaries at the pany began using SAS 13 years ago for a tistics. Now, in one key ap

claims; it extracts, ma

We were a Cobol's but I started doing things i SAS," said Dinne Brown.

SAS," but that has changed. prejudice against SAS by our syst fact, we use it more than the end us

A staff of five SAS programmers has put into roduction some 500 programs that process 100 million claims records a year, Brown said, Advan-ages of SAS include gains in application devel-

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tion with its mainframe counterpart. That means central directory administration, centralized gateways, and scalability. In short - a comprehensive enterprise solution.

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### Chicago library stays on-line

Visitors entering Chicago's syspoid Han old Washington Library Center are sum to be impressed by the splendid architecture of the 10-story building, with its terrazzo and marbie floors and its plaster, marble

But when Ulo Obniste, director of comter services at the City of Chicago Public Library, looks at the building, he is more likely to see an institution that handles From Ormiste's norunactive, this library hole like a bank and like a bank it would a fault tolograf boot in its data cons

For this reason, two of the library conter's most mission-critical applications the on-line card catalog and the book check-in/checknot system --- run on a Tandem Computers, Inc. Cyclone processor The Tundem sits a couple of miles away at the library's data center and id cone

"The check-in/checkout is almost an

automated teller machine [ATM] transac tion, but the delivery of information is a bulk file transfer. That's a problem for integrated library systems," Ormiste said. These functions are segregated on the Tendem system which handled about 46 million transactions the first year, he said. Another key aspect of the Tandem, ac-

cording to Ormiste is its fault-toldrant nonstop features. Using the bank ATM



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Chicago Public Library

eters, inc. installed in a sinta centera ow in its third governmen of Tandems

analogy again. Ormiste said he wants his eard catalog terminals to be available to library visitors full time.

In addition to the Tandem, the library uses a Wang Laboratories, Inc. VS 5000 as a front end to an IBM mainframe for its persomel, financial and book-ordering systems. The IBM host, run by the city, residen in Daly Center across from city hall.

The library, which began using Tand machines in the early 1980s, plans to move its book acquisition module onto the Tandem. Unlike some other users, however, Chicago's library system is not exploring a client/server migration for its critical an

cations around the city, and you can return a book or pay a fine at any one of them," Ormiste said. "Inventory and custome records have to be available to every loca

The library is using high-speed network ing solutions to address the needs of its main and remote locations. About 200 online card catalog terminals are connected over a 9.6K bit/sec. twisted-pair network to a StarMaster data switch from G Systems Inc.

From there, this truffic is carried on one of two T1 lines to another Gandalf switch at the library data center, where it is sent into one of 20 X.25 packet assembler/c assemblers (PAD) attached to the Tande Each PAD supports 48 terminals

Library users can also dial into the c alog remotely through an Illinois Bell node which hops the call onto an Integrated Ser vices Digital Network B channel run at 2.5K bit/sec. Like the library term up to 48 of these calls can feed into a single X.25 PAD on the Tandem.

Quality Means The World To Us."

### SAS: Life after statistics

CONTINUED FROM PAGE 113

At CitiBank Telemarketing Services in ore, SAS/Stat has been used for years for forceasting market analysis and credit analysis. Now the company — which sells credit cards and financial services for parent CitiBank NA - is using SAS prodparent CHBank NA — is using SAS prod-ucts to develop an EIS to measure the ef-fectiveness of the bank's marketing pro-

rams and telemarketing staff.

Kevin Kramer, director of information services, said the EIS, which he prefers to call "Everybody's Information System," parizes the results of 1 million monthly telephone calls and produces reports and on-line files for graphical display. It re-

> Proof that SAS software works

places a process in which data printed o from the minicomputer-based telemarks ing software was keved back into PC-

"We had a potpourri of ad hot sol tions," Kramer said. "We saw we need to get our act together and come up with an integrated, holistic approach."

Kramer agreed that SAS has a bit of an image problem. "It's the name — Statistical Analysis System." he said. "But when you begin to explain to people all the other modules that exist and all the things it can it opens people's eyes."

Ropins propie seyes.

Xerox Corp.'s Occupational Health In-rmation System is written in SAS from om to stern. SAS handles the data entry

analysis and reporting. The system mea-sures and analyzes employee health and workplace conditions.

workplace conditions.

Anne Stocum, a systems analyst in Xe-rox's Corporate Strategic Services Divi-sion, said the company considered putting the application up with Cobol and DEC. But she said Xerox was committed to us SAS for the statistical chores in the ap cation, and the company found SAS of handle the data entry and database



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Ira Morrow, Vice President, Technical Planning, Shearnen Lehman Bruthers

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the need to pay run-time fees upon deployment

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ion data-access environments. And Qu SOLNetwork." Client-serves nectivity across your enterprise.

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### Unix drives airport transition

CO SHARE CHARGES

At the Dallas/Fort Worth Interna tional Airport, a forthcoming cut-over from an aging IBM System/38 to a Pyramid Technology Corn. mer system running Unix is revolving heavily around lategra-

If was an interestion and the first piace that caused the airport to start looking for an alterna tive to the System/38 in the spring of 1994. The airport had, since it poened in 1974, added a bost of anations to the system, few of which communicated easily with others such as the core financial programs for which the system was originally purchased.

The staff was spending 75% of its time just maintaining the interface of software packages and only 25% of its time developing," recalled Du-vid Dearth, director of systems and technology management. He joined the airport a year before it issued its (RFT) regarding the overhaul

Expanded core Software, including work order processing payroll, purchasing and in-ventory, had all been added to the ore financial systems, which incloded general ledger, accounts Those needed a great deal of

customization. We were pretty much in a maintain situation

as for a technology that would help the airport - which claims to be th world's second-businst airmort based on total passengers - to contique to expand. Dearth said. The first RFP contained about 2,000 specifications, including databases and tools. It narrowed finalists down to a mainframe system

oposed by American Manageent Systems and an Oracle Corn system pitched on a Digital Family ment Corp. VMS or Unix platform The airport chose the Oracle system - the platform decision was to come later. An Oracle solution

uld be built around the Oracle dause, tools and applications, would have been more hardware-Oracie had a better fit in terms

of setually meeting our requirements without modifying their package," Dearth said, noting that some of the Oracle applications required little or no twenking Pricing was not the principal eri-

rion, but lower costs vs. a main frame approach weighed in Oracle's vor, Dearth noted.

A second RFP in August 1991 involved choosing the hardware platform It was during this process that the airport had to decide if it wanted Unix or VMS to drive its business. We strugged over the issue of w open we really wanted it to be," Dearth said, recalling that the airport had some of the usual con commercial users about I'ely We wondered about its security, its





mgm Topianasys ment of the airport into

An industry movement toward port's comfort level. Dearth said noting. "We think that Unix is going to mature, going to get better. Unix, Dearth claimed, allows a user to pull out the bardware if a machine does not work out and in better suited to provide "the horsepower you need for relational nee-

### Close competition Four bidders in addition to Pyramid

responded: Sequent Computer Sys-tems, Inc., AT&T, Data General Corp. and Hewlett-Packard Co. Doorth said pricing one "extremely competitive," and all the bids eame in at close to the same level. "Aloi of them thought DFW was a site they could use to market to othripal clients," he observed. When it came down to choosing a

finalist, "one of the things that was most important was the relationship with Oracle -- where they sat in the porting schedule with Oracle " Dearth said Demosid and Sequent outperformed the others on that count. Pyramid held the final advantage of being Oracle's develpment platform for government Unix financial softwar The airport has two Pyru

chines in-house: One will be the pro duction system and the other a development system. The Pyramid production system is a four-process sor Model MIS 12; the develop system is a two-processor Mode

### Brief

### System/88 deal lives

IBM and Stratus Comp Inc. recently announce they will extend thele OFM as rangement for IBM to distrib-ute the IBM System'88 platforms which are beaution Stratus fault tolomat com

### Outsourcing for Prime users

lumped into what it sees as a anid jeft by the troubles of Prime Computer, Inc. Gemi sys place to provide outeo ing services to users of Prime minicomputers by offering access to Prime platforms at Gemisys' data center. Gemiove claims its service will allow Prime users to retain a plications based on Prime's

### NY Life buys into

picked up a cooperative pro age by buying an 83% stake is software supplier Magnus Software Corp. in Mariet On. The subsidiary, NY Life, Inc., had previously used the Magnus securities manage ment software, NY Life offiis said they hope to ma

### Michigan to use Unisys gear The state of Michigan

ly signed Unisya Corp. as its supplier for a \$60 million client/server-based system to welfare program. The networked system will use two Unisys 2200/644 mainframe 144 Unicos USODO Universe ers and 6,200 PCs.

### lemens picks

me AG recently signed as agreement to use Verita Software Corp.'s Veritas File System as a storage manment product within the Sie-mens/Noutorf Sinix operation

### Relief organization adopts database tool Ry Mitch Rotte



For World Vision Canada, the economic recen sion has meant a dramatic drop-off in charitable donations to the international relief organiza-tion. So the last thing it needs to do is annoy donors with too many mailings and impersonal

As a key part of its move toward more selective and personalized mailings, World Vision Canada has acquired a software package, ealled Market-Pulse, that was designed especially for databasedriven marketing compaigns. The vendor is MarketPulse, a Cambridge, Mass-based subsidiary of Praxis international, Inc.

With the software, which runs on an IBM 4381 mainframe. World Vision Canada will be able to identify, for example, donors who prefer to give to relief efforts in Ethiopia and those who never respond to follow-up mailings, according to Peter Ward, director of donor research

About Kirk of the charity's income comes from people who sponsor" a starving child they have seen up World Vision's television specials. But the list of donors has a high attrition rate, Ward said, because the donors either lose interest or become annoved by repeated fund-raising appeals



ing compaign is to retain these sponsors longer by sending personalized mailings that focus un the giver's motivations and by reducing unwanted mailings. "Not all sponsors are the same," Ward explained, "Some are child-focused, perhaps because they are

empty-nesters who have a vacuum to fill. Some are social activists in the war on poverty."

The database has about 750,000

es, 400,000 of which are coasid-Ward said the decision to use

MarketPulse was clinched when he saw a demonstration of the softu for its relief efforts ware's segmentation power using tancs of World Vision's own database. "We were overwhelm hy how easy it was to select categories of donors and how easy it was to use. We didn't want something that would be intimi

dating" be said World Vision Canada is in the process of moving its data from the mainframe to an IBM Application System/600, but MarketPulse will continue to reside on the spare mainframe and will extract data from the ASODO

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### Think Pad

screaming 486 SLC\* 25 MHz upgradable processor. But it's built for comfort too. There's a surprisingly roomy interior, with a full-size, regonomically designed keyboard. And a screen that literally bends over backwards (180 degrees, to be precise).

Strategically placed on the keyboard is a little red spot called the TrackPoint II. It does what a mouse would do with a few million more years of evolution. Nothing dangles; it's part of the soul of the machine. You can operate it with one fingertip. And it allows you to think on any terrain, even one without arm flat surfaces.

The ThinkPad's screen is a thing of almost aching beauty. Its 640 × 480 V.C resolution is sharper than that of many desktop computers. It displays 256 colors. And it's the biggest screen on any notebook. All of which makes ThinkPad very casy on the eyes.

The ThinkPad comes standard with things some other notebooks don't even offer as options. Like 4MB of memory you can upgrade to I6MB. 120MB of hard disk space, Pre-installed DOS 5.0 and

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### Large Systems

KineticSystems Corp. has introduced the H TMS 6000, a VME-based, fully integrated High Performance Test Management Sys-

The software provides separate win dows for text and graphics and can now run under X Window System. Data collec-tion and conversion, signal conditioning, analysis software, test control, graphical lisplays and report outputs are offered in in integrated package, according to the Standard features include anti-aliasing

rs, programmable gain, auto-calibr tion and the ability to expand to 1,568 Time is saved in test setup, report generation and data analysis with menu-driv-

en software, the company said.

Tests plans can automatically be generated, modified, stored and executed. Onboard dynamic random-sccess memory, Goating point co-processor and memory management are inch

Pricing for the TMS 6000 system starts at \$33,000. ➤KinetieSustems

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Interval has annoused a new combined erials management/accounts payable

According to Integral, the product is a fully integrated inventory control system that combines the functionality of the company's materials management application

id accounts payable software. Through a common set of data files shared between the systems, users can receive and review vendor information, pur-

chase orders and receipts. Separate batch processing procedures are not needed because the application's real-time processing automatically up-dates records at the same time with data

entry, the company reported. The proc runs in the CICS environment. Pricing begins at \$278,000. ➤ Integral 2185 N. California Blvd. Walnut Creek. Calif. 94596

### CETAL GOO DOO

Reltech Products, Inc. bas announced the availability of a Microsoft Corp. Windows-based utility for DB Excel.

based utility for DB Excel.

DB Excel is a DB2 Systems Application
Architecture repository-based data dictio-nary for IBM mainframes. Organizations
receive complete centrol over their "meta data" such as the field names and other at-

tributes that define their information systems with DR Excel. According to the company, the Windows utility enables users to browse through the same important data that conventionally was accessible only to data processing and information systems personnel, assis neers in a variety of departments to make

The utility costs \$10,000 ➤ Reltech Products

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Data 21 has announced Version 4.4 of CICS Help, a software package that facilitates IBM Common User Interface Contextual Help for CICS applications and Hypertext On-line Docume

New enhancements and options include improved Hypertext support such as Hy-pertext jumps and pop-up definitions en-abling users to create PC-style Hypertext ments in CICS.

Dynamic Database Access allows files to be defined to CICS Help, which presents fields in the Help and Fleid prompts dis-played in CICS Help. PC "authoring" support is available for options designed for WordPerfect Corp.'s WordPerfect 5.1 and Word for Windows 2.0

CICS Help pricing starts at \$6,005 for DOS and \$14,995 for MVS.

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### Data modeling: Tough but rewarding

Data modeling is rather like going to the doctor for wellness checkups: You know it is good for you, but you eannot necessarily quantify the

Although hard numbers are tough to come by those who have done data modeling say it offers many advantages. Among them are getting data to users in a formal that supports their business

requirements and cleaning up conflicting and redundant data formats that are part of most large companies' information systems reportoires. management

But data modeling to not easy or cheap. It can be a five- to 10year effort fraught with potitical battles and difficulties justifying

needed. it to top management.

Data modeling, in its ensence. is defining what the business does and how, and then figuring out what data is required to support those requ rements. This in-

formation is then modeled and drives all applica-tion development efforts. Donnette Bruno, a data administrator at Bar nett Technologies, Inc. in Jacksonville, Fla., likened data modeling to "cleaning MIS" house." In her last job, at an insurance company, "We found 87 different varieties of region code. Why? Because programmers were doing what they were trained to do being creative. And they were very

good at it," she said. good al. I," she said.
Alan Kortesoja, a partner at Erost & Young in
Ama Arboe, Mich., said changing business re-quiereneats have forced insuranze companies
into the vanguard of data modeling. "Insuranze companies are thinking now in terms of providing services, not in terms of loddridual policies. But

It is often

difficult to

convince

that a data

modeling

effort is

ies, he added, are deine da modeling in fits and starts. That has been the case at Blue Cross/Blue Shield of Minnesota. which began data modeling about 2 % years ago but has been doing it "intensely" for the past year.

said Steve Hiller, manager of data resource man agement. The primary benefit has been clarifying terminology to the business people, so we all have one way of communicating

with each other." Mellon Bank Corp. has been about three years, according to Jim Stuber, first vice president. It's been very successful. The

quality of applications has im-proved," he said. The bank meaes that quality by how stable as are once they are in

me way you built the old on nt ranging from 20% to 80% from data model

ing. Those numbers are difficult to substantiate however, in part because of the challenges to dat modeling. These include justification and notiti Kortesoja said, "The general problem with an rehitectural group is that it's hard to relate to

cost reduction or revouse enhancement," the two primary notivitors for any business decision. As a result, it is often difficult to convince manage-ment that a data snoteling effort in needed. Still, he said, nome firms justify it "on the basis that they are going to lose revenue or miss op-

portunities" if they do not get their data art to

Another problem is the political situation Systems people are our worst enemies," Bru aid, "They think we're taking their into away." Kortesoja noted that part of the problem is that some data modelers become almost religious in their zeal for perfect data. "Other people look at them as a strange cult that is hooked on data. There can be a certain righteousness about peo-ple who are 'into' data." he added

One way to avoid that, Kortesois said, is to help the developers understand that you're doing something for them, too — providing a better understanding of how their application works." For that reason, he said, some companies assign a data modeler to every applications develop-

A hig question at many com-

ed. It can be a catch-22 of modeling data for ting applications, which are presumably king and would be a hard sell, vs. a top-down fort that starts with the business needs.

Del Monte Foods in San Prancisco struck as

approach that may not sit well with data modeling purists. The company is implementing a corpo-rate repository for decision-support applica-

"I've already warned the users that they will have conflicting data formats," said Lee Bain, manager of data resources, "When they start screaming, I'll begin data modeling to clean ev-

still, it can be worth the time and effort. "We started in 1985," ead John Chatfield, senter prin-cipal analyst at Salt River Project in Phoenix "It's led to rapid systems development and de standardization that has paid big benefits, a

needs to the date ded to sum

### Levi Strauss cuts client/server pattern

After years of running its business on IBM mainframes and Hewlett Packard Co. computers, Levi Strauss & Co. is taking elient/server systems for a test drive. The \$5.4 bill lion company is in the final stages of completing a pilot project to prove that object-oriented programming.

began in June 1991 with a few basic building blocks: Unix, Sun Microsystems, Inc. servers and the Sybeforehand by a special task force within Levi Strauss called Information Technology Action Group.

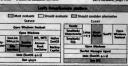
During the Orion project, a team

new ways to create ap-plications and had to ed programming tech-niques. The clothing

firm now plans to test a pilot Unix applica-tion in several busi-ness units before approving the rollout of Lee, who is manager of Levi Strauss' Advanced Tochnologies Group. "We will develop the criteria to choose which development method is ap-propriate for each application. The g-term goal is to use our main

sow d's pretty much routis

Doing that would allow user PCs and workstations to access data on either the IBM mainframe systems ring program, known as th ner Service Supply Chain. Levi Stranss. page 142



### Basic gains commercial respect

By Garry Ray

Basic, the 1960s brainchild of two college ors, is making beadway as a "seri programming language in corpora-But developers faced resistance as eena sucresting use of the language.

ing database servess and maintainability, the turn toward the language is being fueled by Microsoft Corn's Visual Basic for Windows, which was recently opgraded. With more than 113,000 Visual Basic applications now in ess use, according to Microsoft, the source of Basic's | tawdry| reputation is on decades of old interpreted technology, not on compiled, event-triven Basic," said Tom Button, a group product manager at the Redmond, Wash, software communy. While that may be the case, con Visual Basic said there was initial resis

nce to using it as a prototyping and de

to making to as a processing and or topment language. "I cringed when I first beard about Visu al Basic," said Heng Tan, a manager of ap plication development at The Prudential an insurance firm located in Newark, N.J. Tan, an experienced C and Cobol programmer, had been looking for alternatives to C and Microsoft's Windows Software Devel-opment Toolkit, which he thought were not propriate for his team of five former Coappropriate for all soun of two former Co-bol programmers. After looking at "other development tools, all of them." Top said. Microsoft's Basic seemed to satisfy a nun ber of development concerns

Among those were that the lunguage could be used to prototype applications quickly; that code could be reused in muitiple projects; and that no runtime license fear more neguined for finished applications. "There's no runtime to distribute no from a corporate point of view it's a no-

Other managers stressed the imtance of maintenance and an ample supply of Basic programmers. "Management sa't have concerns about what hap pens if I get hit by a truck. It's easy to find people who can program in Basic," said Tim Landgrave, an MIS manager at a Midwestern oil company and owner of coass ing firm Kizan Technologies, Inc. in Lou

ment still encounter what Frank Pe ters called "C snobbery." Peters, preside of Plaid Brothers Software, an Irvine. Calif., development house, described one development contract where "we asked if we could go from C to Visual Basic, and in we could go from C to Visual Basic, and in five minutes we were fired." He main-tained that Basic is a more suitable vehicle for rapid application turnsround because "you can't keep your head above wat th C and C++ no matter bow many pro

The ubiquitous nature of the Basic is inge also made it easy for Nicisen Mar ting Research, the Northbrook, Ill., divi sion of A. C. Nichen, to deliver front-end technology for its Nielnen Infact Workstation. The workstation includes market re search databases of up to 1.5G bytes and a ge of front-end database access took t are delivered to customers as Visua Visual Basic tool art

We buried some VBX controls in the front end so that if someone wanted a bui-ton that would give database access, all they have to do is add it to the application," said Walt Wickman, director of global deery technology at the firm.

hvery technology at the firm.

Even a few C programmers, noted for their awersion to other languages, are be-ginning to consider the benefits of Basic programming, Sunil H. Shah, a Paranje ton Hills, Mich., software consultant spe-tem. cializing in process control and data acquition, said, "I've shown [Visual Basic] some C programmers, and they are very surprised. Some are now using it instead of Cor C++." As for the unconvert don't know there isn't much of a di



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At Candle, we're as committed to IS people as we are to IS technology.

### Dear IS Professional.

When an IS organization succeeds in meeting the needs of the enterprise, technology often gets the credit.

While carefully applied technology can help companies succeed in the marketplace, at

White carefully applied technology can help companies succeed in the marketplace, at Cardle we believe that the people who make that technology work are just as important. It's the people in So organizations who work to see the needs of the future, define the strategies receives yor more those needs, evaluate available and emerging refetthologies, cut through the confusing clutter of competing claims, and build and implement the solutions that help the cuterrises more forwards.

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Bul Pile Bill Pike

Senior Editor, Candle Publications

### Meet Computerworld's Gary Beach

Gary Beach, the publisher of Computerworld, has the uncan ability to memorize people's names as be is casually being introduced to them just before be is about to speak. During his presentation, be makes direct eye contact with an individual and defily weaves each person's nan into his presentation. "We feel that people, such as you, fim Smith, have a role to play in belting to change the direction of our industry." Beyond technique,

Beach is a

people about

the publica-tion and



information technology. He easily gains and holds the attention of his audience. It is, of course, his business to know a great deal about the current state of the IS industry as well as new

Beach's fast-path career has seen him rise rapidly, having been in the data processing and publishing industry only little over 12 wars. For eight of those wars he was with Data Communications magazine at McGraw-Hill In-1987 be went from being the sales manager of Data Commi weekly they started called Networkworld. Four years later. in the Spring of 1991, he moved over to Computerworld and for the last 10 months he has held the position of publisher. The

### and outspoken IS manager. Q: Do you enjoy meeting and talking with your readers?

A: Yes I do. We conduct eight surveys, two a quarter. We also run focus groups around the country. We never miss an opportunity at a trade show to sit down with our readers and find out what's on their minds They are the ultimate judges of how well we're doing. And if they're saying we're doing a good job, they're going to vot with their pocketbooks and renew their Computerworld subscriptions.

### Qt it seems that very few computer industry publications last long before merging or going out of business. Computerworld is one of those rare exceptions. Why

A: It's very simple We're driven by a rudmentary vision, staying close to our readers' needs. We ask them how we are doing and what do they like to see? We also ask them to rell us what they see that they don't like What are the burning issues that keep them up at night! How can we address those needs and concerns better! By meeting their needs, we have been successful

### Q: Do you need to be aggressive to stay on top?

A: Oh yes. Climbing a mountain is fun but staying on top of it can be very challenging.

### Or Why is that?

A: Because we're always in the sights of our competitors. We have to work very hard and be externally focused. We have to get out there on the road and talk to our readers, to find out what their needs and concerns are. We need to manage Computerworld like a new, "start-up"

We need to manage Computerword like a new, start-up' enterprise. That is the message I've been communicating to my management team over the last ten months When you work for a start-up company, it's existing, civeryone has energy, enthusisism, and a sheard vision. The sense of vitality, if we blend the passon new corpanies enjoywith a well-established product, we have a winning combination.

### Q: You recently presented a series of seminars across the country in which you identified several distinct management cultures that currently exist within the IS environment. Would you define them

again, please?

A: Yes, but let me first tell you why we were interested in

management style. I believe we've all heard a number of industry gurus describe what they think IS and data processing managers are like The untested, but widely accepted, image has been that of a group of nervous, womed people working in the glass house watching their power base steadily erode. These people are often described as being defensive and powerless. We are told that they have passively resisted change as new IT opportunities came onto the scene, such as open systems, the PC explosion LAN innovations, etc. We began to question the image we were being given because it didn't fit our frequent, firstnerson interactions with our

knowing more about our cultural

Link innovations, etc. We began to question the image we were being given because it didn't fit our frequent, first-person interactions with our readers, many of whom are IS managers. So we commissioned a psychographic cluster study to better understand who IS managers really are: As a result of the study, we found five distinctive IS management styles

(see Figure 1). Let me briefly

describe each type: . IS Warrior (Operating Style-Entrepreneurial). The study shows that what we call the IS Warrior represents the largest segment of our subscribers These people are leading the charge of computing down the platforms, from the mainframes to the midranges, the workstations, and the PC. The issue that keeps them up at night is. "How do I stay ahead of my end-users' computing needs?" And, 'How can I leverage new or existing technology here at XYZ Company do a better job in supporting my end-user

 Visionary (Operating Style – IS Champion). Visionaries are more like corporate CIO types. They're looking at technology,

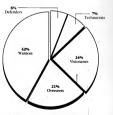


Figure 1 - Computerworld Subscribers in the Five IS Cultur

but rather than from the enduser basis that the warrior uses visionaries are asking 'How can I use this technology to help my corporation be more competitive in the marketplace? Visionaries take a more macro view of new technology

- Overseer (Otenatine Style Maintenance Mode). Overseers are very loyal IS managers, but tend to come in at nine and leave promptly at five. When they are on-the-job, they do a very good job. There's a significant shift in this style from the visionanes and the warriors who are externally focused, in terms of helping the corporation or end users Overseers look at technology and IT putchases and ask 'How will this make my life easier?" They have more of an introspective approach when it comes to purchasing new
- technology. · Technocrats (Operating Style -The Old Guard). The study found these people to comprise a small segment of today's IS management. Technocrats tend to look at technology for technology's sake. They get excited by the fastest chip from Intel, or the higgest IRM mainframe: but they're also the most costconscious. They enjoy getting involved in and understanding complexity. Technocrats are highly knowledgeable and will shop for price much more so than the other four groups. They do a lot of comparison shopping and tire kicking
- · Defenders (Operating Style -Survival Mode). The last group are the segment of IS management who truly see their power-base eroding and don't know what to do about it

When they purchase products, their driving motivation is \*How is this information. technology product going to help me maintain control over what I have left?" Ironically, it is this segment that many industry analysts characterize as the entire IS management community. We found the image couldn't be more insonumbe

We identified five solid IS management styles in the U.S. in 1992. Of course, each corporate culture is unique and depends on the type of business, age, and management structure of the company. Some organizations tend to encourage a more conservative style of IS manage ment, while others foster more aggressive style. We also believe that there are worldwide counterparts to our U.S. management model

### Q: Were you personal surprised by the resul your study?

- A: No I wasn't. It confirmed what we saw in the people we met and know. We also con mple across the IDC datab that confirmed our belief that all IS managers (including th who aren't Computerworld subscribers) can be fit into one of the five cultural definitions
- Q: What happens when the "defender," for example, makes purchasing decisions! Don't his or her decisions influence industry direction?
- A: Not really, because the defenders in IS are a very small management segment. Only six out of every 100 IS managers are defenders. We also believe the number of defenders is

decreasing

Q: What were the root can for the emergence of the a more self-actualized IS ma

have to look back in time. In the 1980s, IS management learned a very important, telling lesson. Prior to 1980, data processing managers "owned" the composite data by default. It resided on a mainframe within the glass house. The decade of the 1980s marked a time when a new debate began in compa regarding who truly had owner ship over corporate information. Underlying the debate was a transition in philosophy. Computers were changing in image from being a "tool" to becoming

A. To parmie that acception were

a \*strategic resource A less service-oriented manas ment style in many data centers made it difficult to access data and began to trouble the community of end users. Users were rowing increasingly frustrated y a poor MIS response to their increasingly sophisticated needs IS managers were also frustrated by the inability of their staffs to quickly migrate to newer, more reliable systems. The typical MIS project list in the early 1980s was five or six pages or longer. The inside joke was, 'You want it when?" with a cartoon character

doubled up in laughter The advent of the PC quietly signaled the end of centralized data ownership and the produc-tivity logiam of the 1960s-style data center. For the first time, the individual began to own the data. Applications such as PC Spreadsheets, databases, and word processing applications quickly met and exceeded the far less personalized, accessib user-friendly mainframe solutions The increased popularity of the

local area network, toward the end of the decade, also marked an important shift in the issue of ownership. Departments in the company, with LANs, began to im ownership of their local ormation. IS and data center nent of the 1980s viewed the exodus of

their most troublesome users and departments with a profacility of their but they found sense of felic! But they found sense of felic! But they found their sense of their users all user have They began to see that delivery of information to internal end users to best viewed as a sertice-based are very much like a business customer. As such, providing information needs to the prompt, reliable, and responsive to the needs of the emergheir meeds of the emergheir meeds of the emergheir.

Q: Where are we today?

A: In the 1990s, we see slight back swing of the pendulum. Departments and IS are beginning to share ownership of the data. Technology in the 90s is being applied to help corporations and empower greater productivity.

productivity.

The computing power that formerly resided only in the glass house is being pushed out into the organization to the midrange and workstation where it is of most value. Is is actively managing the move. We see the 1990s as the "golden era" of corporate computing, and it's only going to get better.

Q: What about the bad news you print in Computerworld of large reorganizations, layoffs, and downsizing activity in company IS organizations?

A: Of the sad stories we print. part has to do with a weak national and world economy Large and small companies are facing difficult, challenging times. The other part has to do with rapid, large scale changes in the IS industry. In any given discipline there are people who cannot adjust to rapid job changes, and they will see their jobs forever altered or go away. It is worth emphasizing that some of the people who have lost their jobs are out of work because they were unable to adapt to the demand for a more responsive IS management style. Q: What does the newer IS style require of a manager? A The directive to IS managers is: to do your job properly, you

customers' out in the field as well as administering the work within the confines of the data center. Q: Do you think the people at the lower end of your

Q: Do you think the people at the lower end of your management style spectrum can change their behavior and become more visionary or warrior-like?

A: They have no choice. We're in a very competitive economy, not only nationally but globally, and information is the heart of most organizations. Users, managers, and executives will not stand for an IS organization that behaves like a defender.

Q: Based on your frequent interaction with your readers, is there a common concern emerging that you hear expressed more often these days?

A. The major problem, or challenge, facing IS management today, is how do we maintain security as more and more people, new users, come online. It wasn't a particularly difficult issue in the past when data and data management were centralized and the environm was controlled. Today it is a significant problem IS leaders must face as information becomes decentralized and more widely disseminated. Who gains access to critical information and who is denied becomes a non-

Q: Are there ever times when you wonder about the wisdom and direction of new technology?

A: I pender on two issues. One question that I keep asking anyone who will listen is, why does everybody need all those MIPS on their desktops? There are so many MIPS these days, we're getting over-MIPed. I believe that applications are going to start driving computer purchases and software purchases, much more so than how many MIPS we can cram into a box.

a box.

The second issue that I wonder about is that the rate of change and offer-misseding claims of new technology can be very confusing to users. Is mrangers are offer very confused by the checkhology can be very confused to the checkhology claims, as well. Even technology claims, as well as the checkhology claims, as well as the confusion of the confusion is exacerbated by all the information that reaches the Is the confusion is exacerbated by all the information that reaches the Is all the confusion is removed the confusion in the reaches the Is all the confusion is confusion in the reaches the Is all the confusion in the reaches the Is all the confusion is confusion to the confusion in the confusion in the confusion is the confusion to the confusion in the c

I frequently use a quote from Bill Gates in my presentations, that is very telling. One of the buggest jobs Gates has, is reading all the printed material so he can stay current and can set corporate direction.

Q: But doesn't Computerworld also contribute to that mind-boggling load of new technical information? A: Without a doubt, we do.

A: Without a doubt, we do.

A: Without a doubt, we do.

Patricularly as weekly newapper. It's one of the issues that
motivated us to redesign our
publication. A frequent concern
that we hear from our regdens; it's

\*I receive my copy of Computer
world on Monday or Tuesday
and I can't always get my
world on Monday or Tuesday.

\*I know there's a lot of
important information in there.

\*Please help me get to what I
need to know, faster.

\*I

Q: Have your readers' expectations of the publication changed since Computerworld first started?

A: We find that readers aren't as interested in scoops any more. They prefer more in-depth analysis of the information. For example, if Candle was coming

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out with a brand new product next month, it doesn't do our readers much good to see a front-page story in Computerworld unless they understand how the news is of particular value to them. They're asking, why do I need to know about a new product, what is its specific value to me, and are there any problems in the product that I should know about?

Q: Few computer vendors wish to see the downside of their new offerings in print, yet readers want the most accurate picture they can get, warts and all. Inn't that a

accurate picture they can get warts and all. Isn't that a challenge for you?

A: Not resuly. Our cinater is to print accorate, timely information. We are a user advocacy publication. When are average are according to an according to every companing around the experiment of the press release verbuint. Their stories say, "We too believe this is the greatest product on the market and it looks like the vendor has, once again, saved

the industry."

I happen to believe that the IS community is not that naive. So, we run the story, based on what customers, who have actually used the product, are saying. We try to give the stories we run a stant from the user's perspective.

#### Q: Can you give another example of writing to the customer's perspective?

A: We saw on MCI mail that Microsoft bought Fox Software for \$165 million. Our stories the following week were asking what this change means to a Fox Software user. In our stories,' there were definite pros and cons. Q: How do you respond to

#### Q: How do you respond to the vendor who is embarrassed or angry by an unflattering story?

A: There are stories that have to be told that are difficult, but we tell them. If the vendor gets annoyed, we try to convey to that vendor, we're only doing our job. We try to run a balanced story. Consistent with our mission, we're sharing feedback from their constituency base, users, and customers. Our custors represent bow they feel

quotes represent how they feel. We print what they told us. I will sometimes suggest to an upset vendor, contact the quoted customer yourself and if you are told something totally different, come back and let us know. If we misrepresented the information, we'll run a retraction,

Q: On the subject of marketing/sales claims, how important will the message of technical complexity be to customers in the future?

A: Let me respond by relating what a very technically bright IS manager with Actua Insurance Company did recently. He attended bur sister publication's (Networkworld) annual conference and brought with him to the conference, the marketing director for the property and casualty division.

They were there looking for a

local area network software

product to support the specific needs of the property and casualty division. As they passed by companies with potentially area, and were genered by sales saff, they would insist that, since the director had absolutely no technical background, the salesperson had to present gir plain English. The Is manager's objective was to ensure that his user could make an informed decision and not be baffled by children of the could be a supported to the could be the could be a supported to the could be a supported to the could be the could be a supported to the could be a supported to the could be the could be a supported to the could be a supported to the could be a supported to the could be the could be a supported to the could be a supported to

that day! I think most of us have found ourselves tuning out a technical sales presentation that is trying to impress us with product. complexity and only succeeding in making us feel inept and confused. After all, there are only a few Technocrats.

only a few Technocrass.

Q: A final question. What do you see as the major issues beyond the 1990s? What should Is managers and ClOs be thinking about in preparing for the next 15 years?

ing for the next 15 years! A. Most important, in my opinion, is staying close to your customers. Guardeness will tell you what to do over the next to be successful to the support of the

the information issues that reall concern you? Over the last ten years, IS management has realized that they have to do that, and from our psychographic cluster study, a majority of them are already doing it today. B

# Aetna's Information Technology Framework

Like most large-scale enterprises, the core of Aetna's business is using information. The firm recently adopted a companywide architecture that provides a means to use information by shaping an information technol one environment which is flexible enough to meet huraness needs and respond to business and technology changes at whatever rate they occur.

The challenge of gathering all company opinions, biases, and independent mindsets in order to blend them into a workship consensus would seem to represent an impossible assumment. But then we stoke to Davis Thermal associate tree president respon sible over the last 18 months for developing the single-minder to manage define's complex and diserse IS functions

# Q: Davis, would you define for our readers what your are at Actno

A: My responsibility is to define and implement a framework to make consistent decisions related to technologies and information management so as to simplify and leverage our information technology environment

# Q: That sounds like a difficult assignment. What does the word "framework" mean within Actna's IS culture?

A: It has been challenging. The framework is a plan or architec ture for the deployment and use of information and information technology resources to support

The idea behind Aetna's architecture definition is that a traditional definition of IT

architecture is inappropriate in a dynamic and unpredictable environment. To most people in IT, architecture is often thought of as a diagram or set of products or lists of approved yen dors. The fallacy in this approach is that we are dealine in an ever-changing business and technology environment. A static diagram cannot anticipate nor solve all our new problems. By the time a diagram is approved and published, it is already obsolete What are seeded and a framework that transcended outdated lists which permitted us to make consistent decisions throughout the organization regarding information and information technology re-

#### Q: How did you apply the architecture throughout your

A. The first thing we did was to understand Aetna's business context and to capture the values with which the senior managers make decisions. We call these values principles. Throughout Aetna, those prin ciples were debated and agreed upon by the business heads as well as the senior managers including our president. Ron Compton

# Q: Can you give us an example of one of those principles?

A. Yes, but first let me explain the scope the principles cover The principles can apply to one or more of four different IS areas. The information area. the infrastructure area (the term 'infrastructure' includes computing, telecommunications, electronic printing and publishing). the applications area, and the fourth area, organization and

benble

Now, to answer your question and give you an example of a principle, "Reuse before you buy and buy before you build." Q: That sounds pretty good,

but what does it mean A: The principle is saying, if

there's a possible solution within Artna, let's reuse it before we buy it and if we can buy a solution, let's buy it rather than building it from scratch. We have 13 principles that can apply to one or more of the four major areas The 'reuse' principle is applicable to most of the areas It is especially applicable to the . information the infrastructure components, and the applications I believe that Aetna is one of the few companies, in the United States, which has created a set of high-level principles, gained senior business and IS managers' acceptance, and actively practices them today

# Q: Were these principles hard to get focused and finalized?

A: Yes they were! The principles represent an applied value system company-wide affecting 45,000 employees. Employees needed to understand the rationale for a given principle. why it is a principle, and th implications of the principle. Agreeing on the implications of a principle was the difficult part. Q: Somewhat related to the issue of architecture, what has Actna done to manage its

ran in each of the different divisions with some redundancy One of our first priorities was to consolidate the IS efforts. That was the challenge Aetna was facing when I came on board

A: Until recently, Aetna was highly decentralized. IS functions

Q: It seems you faced two challenges; making sure th costs were managed and ensuring that your costs ga

# corporate IS the highest

- A. Yes, both are true. In addition, we wanted to provide greater, more responsive service. We wanted to differentiate in the market through our superior.
- Q: Let's compare Aetna to another basiness, commercial banking, in the competitive banking marketplace, needs for 18 Soultions come up very fast when business opportunities come along. The technical people have to scramble to fit the business needs. How do you compare or contrast that with the industry von trethat with the industry von tre-
- A: I think that banking is a little bit ahead of the insurance industry in some prays. However many of the issues that apply to the banking industry are also becoming true in the insurance industry. This is due in part because the insurance industry is also a financial services organiza tion. Both insurance and banking have a number of similar business goals. Both want to manage risks effectively so that they can make money. The raw material both industries are dealing with is information. The challenge to IS organizations in either industry is ensuring that there is an organizational understanding of the importance of information and how it is
- In other ways, the insurance industry is more mature than banks. For example if one examines the procedural aspects and management aspects, one finds the insurance industry to be more advanced than banks.
- Q: Insurance companies are often depicted, in advertising, the media, movies, and so forth, as being very slowmoving, predictable, stable organizations. Is that an

- A: That image is changing. Most of the money made by insurance companies these days is not from the premiums they charge their customers but from the survestments they make on the money from the premiums. Insurance companies are in a competitive time and must make prudent decisions in short time frames.
- Q: Who measures compliance with the principles and who is responsible for carrying
- A: Let me walk you through the process, so that it becomes more clear. The biblical Ten Commandements were a set of architectural principles for a society. They dictated: "If you follow these rules, you'll have a thirving culture." They were a high-level value system. At a high-level value system. At a high-level value system. At a with the command they will be set to official to other with them.
- What we have done is translated our high level values into an architectural estion. Once one has read the principles and understands all their implications, then what emerges is a glimpse of our future technology environment.
- The process consists of four key
- Understanding the business
- Building the principles
- Drawing the blueprints
   Establishing the standards
- Constructing an architecture requires cycling through each of these steps for every component of the IT environment. The business convext is important, as it ensures that all of the work is grounded in the business by expressing the themes that will drive Actua in the coming years. The IT architecture principles state Actua's approach to

managing information and

- information technology. They are closely linked to the business context to ensure that technology decisions closely support business strategies and prionties. We now make our decisions in accordance with the single set of principles to realize a logical, consistent
- computing environment. Blueprints are pictures of the desired technology and how it is all interconnected. Standards, the last step, are the specific rules and guidelines for implementing the pictures or models. They permit the physical imple-
- Q: But technology doesn't stay the same very long in 15.
- A: We recognize that technology is changing, but as long as we know our architectural standard, which is basically apercying the interface and functionalises that interface and functionalises that we we explicate the competition of the way and product to work, then we shall recompeted the competition of if we want to choose a specific product, we simply have to ask, does product X support all our architectural standards related to the different



components? It either fits or at doesn't Making product decisions using a set of standards becomes easy.

# O: How is it working

A: It's working extremely well, so far. As you know, it takes time for people to start seeing and appreciating the method we are employing to create consistency in our overall plan

# Q: Is there a downside to it? Do you find detractors within the company who say they're missing out on the latest technology because you have them locked into a plan?

A: No. I don't think so. In fact. I am actually opening up the possibilities more, rather than restricting them

# O: How is that?

A: Because once we understand the functionalities and interfaces that are needed, we're not locked into a particular product or technology. If a given technology can support me at the interface and functional level I don't care what technology is underlying it. So that, in fact, I am opening up possibilities to absorb technology

Most companies that talk about an sirchitecture are really easy. listing a set of products they will be using. The problem is that each product has its own ssumed internal architectures The company, in most cases, has no idea what the underlying

internal architecture is. We deal with over 600 technology vendors. When we discover

that a product doesn't fit together with other products or systems. we are faced with a very large problem Q: What do you do about non-

#### compatibility? A In the past we built bridges

to accommodate the non connections. We've built bridges over bridges, and the unplanned structures are almost like a house of cards. It doesn't take much of a problem to bring the whole thing down

## Q: It sounds as if you have changed the way in which Actna looks at its technology

A Absolutely We consider our vendors to be strategic partners. A close vendor relationship, built on trust, is one key way in which we will realize cost-efficiency. Having an architecture and a structure in place has improved our vendor relations with our key vendors that we depend on

# Q: Do end user depart see the results of your planned approach?

A. For the first time, our own ess users are starting to see the value of this type of a framework, of architecture, and I think our business community is catching on more to the value of being in the driver's seat with technology rather than playing the game of "victim

# Q: One last question, when you first came to Aetna and got into the job of defining a tecture, did you have a

#### clear vision, or was it a slow discovery process?

A: Ron Compton, our president, asked, after we presented the approach to him. "How is it possible for you, a 'new guy coming from the outside into our industry, to gain the consensus from all the autonomous unit heads within nine short months I answered him with an old saying, 'When the mind is ready. a teacher appears." But in reality. Aetna Corporation was more than ready to gain control over 1 its IS destiny. An innate organizational readiness needs to be there, otherwise no plan will

Based on assets of \$92 billion. Aetna is the largest stockholder owned insurance and financial services organization and is the 15th largest U.S. corporation. The firm is involved in healthcare retirement programs, as well as property and casualty divisions. Aetna's business is world-wide The information technology area of Aetna employs close to 5,000 technical professionals. The company invests \$.5 billion in technology-related expenses every year. The computing environment consists of 15 mainframes delivering over 1700 mainframe MIPS. The company's population uses over 250 midrange computers and 23,000 personal comput ers. Close to 3 terabytes of data are managed in DASD And close to 1.6 billion pages are printed a year

#### Product Information

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cistomers receive the greatest possible value from their information technology investment.

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#### Candle's products are integrated into a single solution EQACENTER\*

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center processorials with relations and historical analysis about the efficiency of system performance. Functions include: A Bottleneck, response time, and contention analysis.

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OMEGAMON II for MVS – Analyzes workloads, resources, CSA response time, CPU, DASD, I/O, and Morage, OMEGAMON for CICS – Analyzes chapeues, strings, VSAM, etc. Thresholds for hundreds of CICS performance.

of system and subsystem specific elements.

elements: Comprehensive connection information.

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#### Performance Management (continued)

OMEGAMON II for VTAM - Analyzes response time, buffer pools, channel I/O, and virtual routes. Online buffer

trace.

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Storage, response time, and minidisk usage.

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waits, Short-on-Storage, storage violations, etc. VSE analysis for
resources, storage, channels, and devices

#### .

AF/OPERATOR — Systems automation for MVS. Message Manager, Stanted Task Manager, Programmerless Open VTAM Interface; supports multiple CPUs; interfaces to NetView and OMED/AMONs; and full support of IBM REXX.

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# The Eighth Annual Candle Systems Management User Conference

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## Levi Strauss cuts client/server pattern CONTINUED FROM PAGE 127

Orion's pilot Shipment Information System application, which tracks clothing materials as they are trucked from denim suppliers to factories to warehouses, will be completed in December, Plans call for the distribution application to be reviewed by four sites, including a transportation center in North Little Rock, Ark,, and three business units at the firm's headquarters

### in San Francisco. Retrieving data

Working with Sun IPC workstations, users will be able to retrieve from suppliers electronic data interchange data that has been relayed from an IBM mainframe to a Sun

SPARC II server in their husiness unit The system does not use data from IBM's DB2 relational database, which is heavily used at Levi Strauss, in part be-

cause the elient/server system has no DB2 The Shipment Information System application was developed in ParcPlace Systems, Inc.'s Objectworks/SmallTalk object-oriented language, using somewhat of a new type of design and analysis method.

Systems designers categorized object 'classes" by using index cards and talking through the object-modeling process with colleagues. The Class Responsibility Collaborators method, which has been deséribed in technical journals and is a Parc-Place developer's technique, fits with Levi Strauss' management policies, which encourage group decision-making

In the object world you start by defining classes," explained Lanny Lampi, a tech-nical consultant in Levi Strauss' Information Resources Group. "You have to purcel out the responsibilities of each object and decide how classes will interact with each

Carrying out an object-oriented analysis turned out to be harder than switching to SmallTalk. The syntax of the language is not the hig thing," Lampi said. "The important thing is learning how to think about

The advantage of huilding with objects is that they can be used again in future applications, in November 1991, the Orion group decided to use object-oriented proning instead of Sybase's APT tool kit, which then supported only characterbased serven interfaces To immustant the Shinmont to formation

System application, Levi Strauss used an object-oriented framework calted Facets from Reusable Solutions, Inc. in Portland. Ore. That framework came with a collec-

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Outside consultants assisted in the eli-Sybase aperialist and a SmallTalk consultant. They betoed the Orion team make the transition from Cobol development to object-oriented programming and move from mainframe-based DE2 to Sybase database

# e already familiar with the relational

Now that the first test run of elie technology is nearly done. Levi Stramss plans to huild up the Orion team as new dications are identified for develop-

servers on Unix machines.

There was an initial learning curve to ment. The trials of the initial learn perience will be documented to ease fate climb with object-oriented programming. Lampl said, but the 1982 programmers

"We have developed guidelines for all the future pilots to follow." Lee said. "We will definitely retrain in-house stuffers to

do this, but I see this group as being con-sultants and trainers at the same time. They will help the developers of the next project, and so on, as the client/servesology fans out [through the compu



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Apex Software Corp. has announced Agii-ItyAR a database manager designed for Missough Came to Visual Busin Without writing a line of code pages can create dutabase profications by reinforce tom controls. Grid. button, text and picture controls are included along with a full-featured set of commands. Agiitty/VB offers a feature called View Editor, a graphical tool that specifies relationships among multiple databases in view. View Editor has the ability to distinguish databases of different formats. The product provides its own nation database for variable of recture and curishie-length data storage and supports dRose and text file formats

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Donney Software Designs has introduced dClip 3.0, which the firm said is a true en sine for Chaper, designed for compatibility for the user and offering unsu speed. New support is provided for all third nexts modesceble database delected riving users a range of file formats to use in their applications. Other features in clude built-in command and menu support. a database editor, enhanced browse fanc tions and a "work" system that can save an entire working environment, guit the dication and restore everything with a DOTERROREST COMMAND The Clinger 5.01. Compatible Preprocessor is a test preprocessor that commands without having to comoile first

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(714) 263-1011 Electronic imagery, Inc. has annour the imageScale Plus Developer's Toolkit

for DOS and Unix applications The tool kit now includes the JPFG compression/decompression about the Linear can create a fully functional imaging sys tem with items such as enhancement anal

ysis and compression and file manage ment routines. For case of use and adaptability, the tool kit provides a layered architecture and the company's image processing library The tool kit's graphics text and cursor routines in the image proensuled library as well as the command line executable programs, are witten in C ImageScale Plus for DOS costs \$1.905

and Plus for Unix costs \$3,995 ➤ Electronic Imagers

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Lexcel, a Micro Technology, Inc. company has introduced ( anon-) Version 3.2 a Sim Network Management Protocol (SNMP)-based management system that offers several enhancements such as the Chassis Administrator a Lance+ tool that allows users to build customized interfaces. The firm said this provides a consistest "look and feel" for any standard SNMP device contained within a chasola or a network, Lance + runs on Sun Microstytems, Inc.'s SunOS and VMS platforms The product costs 820,950.

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Languages ExperTelliernce, Inc. has announced Action 3.0 for the Apple Computer, Inc. Common Lisp (MCL) 2.0. Action 3.0 has 32 bitclean virtual memory and total control wer colors, and it includes all the features of MCL 2.0, all System 7 events and access to MCL 3.2 traps. Improvements include the "connect to" mechanism that allows objects to exchange their values and a 'run' oplion that permits users to autometically execute the application in momode, assuring them that initialization methods will be correctly executed at run-

time, the company reported. Action 3.0 costs 876G ➤ ExperTetliorner Max Hollister Are 3rd Floor Goleta, Calif. 93117

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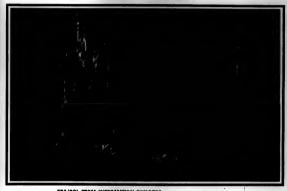
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# **Management**

Tough times create one tribe.

The industry's first major survey of IS attitudes reveals a surprising agreement on big issues from the benefits of PCs to family values.

By Nell Margolis RUTAL business conditions and rapid business hange have forged a strong bond between the young turks and old guard of corporate information syst In fact, a Computerworld survey bas found that there is little evidence of any major generation gap in It's sort of like the arguing about the sexes," says Jack Bush, director of information services at Anonka. Fla-based Southern States Utilities Services. "There are differences, sure — but for most purposes, they aren't mean-

managers (78.5%) and professionals

in the first major survey of its kind; Computerworld polled approximately 1,400 JS leaders and staffers at U.S.based companies on a broad range of technological, managerial, sociological and political attitudes A predictable until emerged about um lines sabore

opinions were more fikely to be shaped by work and life experience. (S folks under 30, for example, showed more optimisim about their cureer paths than did the 40-plus crew. But overwhelmingly, the IS community chimed in together on the key issues affecting their profession. \*The mainframe is fast becoming history; the desk-

ton rules \*Nobody has enough time, especially people in their

\*IS must weave itself into the businesses it serves. For its part, business must serve its community as well as its customers. ·Outsourcing could be big trouble.

(21.5%) age 21 to 74 in 20 industries. ofS professionals who don't change today won't see Why the harmonious convergence? Rick McDaniel IS director at the Oklahoma City-based law firm of Crowe &

Dunlesy, P.C., suggests "forchole psychology" axone key explanation. "Anytime you have a common for old differences begin to pale and bonding begins," he says, And IS personnel are currently confronted on several

scores. "For instance, the recession is a great leveler," McDaniel notes. "We're alf fighting on that front Virtually overnight globalization and the lightning pace at which technology chaptes also come to mind

Sodocurrent trends almed at recasting how U.S. cum do business, which are foreing IS to rethink and reshape its own role.



## "I hate these slick consultants who write that if you're over 50. uou're dead."

Ron Flink . Handy and Harman, Inc.

Take outsourcing Randail Hoan. 18 director at The Salvation Army's Casende Division in Portland. Ore... says he's cautious We've been hitten too many

times "he says

Mistrust of outsourcing Several years ago, Haan explains his opportunitation tried to seen mon ey and time by outsourcing a critical husiness application development project. Unfortunately, he reports. "company made lots of promises and then changed direction in midwiresness.

Months of stagnation, ohe lawsuit and "well over \$1 million" later the project moved back in house "It was devastating," Haan says.

Several years ioto the outsourcing boom, many IS leaders have either lived or heard such stories, or they have beard the siren song of vendors promising to make technology problems vanish overnight That could explain why respondests of all ages fell almost smack in the middle of the outsourcing

Because Computerworld recently policed IS professionals on another hot industry issue - re-engineering [CW, Oct. 19] - the current survey did not address that topic. However, that research and new interviews with IS lenders show that opinions here also cluster rather

"Re-engineering ... isn't just im-portant, it's critical," says Roy Camblin, senior vice president of Wells Furgo Wholesale Services in San Francisco, "It's a challenge that's facing most organizations in this country. And the higgest challenges are the cultural, not the technologi-

One of the strongest bonds weld-

SMALL IS GOOD

Yes

87.1%

No

12.9%



there is likely to be less of a syneratlon gup.

Generally speaking, no nor has had a chance to grow old in 18 yet." Moreover, several experis noted that those who believe age stereo types — of arrogant young whipper-snappers and recalcitrant old cod-gers, for instance — may turn up less frequently these days among the ranks of the employed.

to change," said 29-year-old Mark Bowers, software developer at Tue-"Computer technology itself is still relatively new;" Lipsett notes. son, Ariz-based Tucson Federal

Credit Union. 'If there were such a roup, they wouldn't still be here. Anecdotal experience and formal

studies also support our survey findings. For example, DaWayne J. Peterson, former chief Information officer at Merrill Lynch & Co. and now a private consultant, says he recently saw firsthand how few dif-"I certainly don't see an IS 'old sward' mired in old ways and averse resces exist between older and

AGE AND TALENT

Yes: 80.5%

No: 19.5%

FRESH BLOOD HELPS

Yes: 76.4%

No: 23.6%

-	
ine	IS professionals regardless
	notes New York-based indust
	sychologist Laurence Lipsett.
app	reciation for technology - i
obs	ervation horne out in the Coa

puterworld survey results. Respoodents agree that Cobol is history, mainframes are fading fast, and client/season bond-area networks and desktop applications rule.

Another reason for the wide-

sprend sense that "we're all in this together." Lipsett says, is that the age range in IS is narrower than in other professions. Thus, he says,



IS EQUALS BUCKS BIZ WIZ WANTED

Yes 91.8% No 8.2%

BENT AND RUSINESS NAVE WORK TO DO

Yes

91.4%

# Hearts and minds

# DEFAM IOR

#### younger (S bands

As head of a blue-ribbon task force researching ways to mainstream IS into business. Peterson asked older team members to select younger representatives from their companies to add a fresh per-

As work progressed, Peterson says, oect leaders made a surprising - and initially disconcerting — discovery: "Age didn't figure.

"We were struck with bow solid the so-called 'young turks' were." Peterson recalls. 'They weren't wild-eyed hotheads: they were very confident. On technological matters, some had ex-

perted disagreements between younger desktoppers and older mainframers. But again, according to Peterson, the younger group showed surprising agreement with the old guard. Instead of resistance to traditional be-

liefs, he says, younger team members exhibited discerne views Some felt that older IS models could be worked with; others said, 'No, we've got to throw them out and start over.

That experience squares with recent research by STAT Resources, a Brookline Mass,-based market research firm, which discovered that corporate cultural styles not age, were a key factor in bow IS people think and behave. In a recent study of rending and baying

trends of 400 IS professionals, STAT isolated five main segments: "Warriors (42%), desktop champions who think stratesfenily and act as business enablers: 'Visignaries" (24%) Who share Warriam strategic goals but are skeptical of desktop computing, "Overseers," (21%), underambitious, passionate protectors of the status quo; "Technocrats" (7%) — zealous, aging

devotees of cost savings and technology for its own sake; and "Defenders" (6%), ineffeetive, defensive Exprotectionists. In all groups, age, while a factor, was not a meaningful one, says Susan Ellerin, an

## "It's absolutely imperative for IS to be increasingly embedded in the business units it serves."

Thomas Charbonneau . Bose Corp.



FACE TIME

Yes Yes 99.1%

60.5% No

39.5%

No 23.8% against what he calls "Biggest Calculator

CLOUT

Yes

76.2%

The PCs themselves can do just about anything these days, but the users aren't taking advantage of that They use them for word processing, for spreadshrees " he says. If see a lot of PCs out there getting used about an hour a day; that doesn't

make a whole lot of sense. in fact, George says he suspects that the desktop revolution exists largely in the mouths and minds of "a lot of people who are trying to fool themselves to justify all the money they've put into PCs" from which they are realizing scunt payback Typical old-fogey talk? Maybe - but

George is 34 years old. \*Professional skills. While 80.5% of survey respondents said they see big differ-

tween older and younger IS people do exist," McDaniel says. His peers agree: Asked if they see major differences between older and younger IS felk. 81.0% said yes but were not able to describe the differences clearly

industrial psychologist and STAT presi-

Don't get me wrong, differences be-

No

.9%

#### Are we not PC worthy? Consider, for example, the mixed respons-

es on the following topies: ·Personal compating, is a PC-savey younger generation crowding out an older. mainframe-oriented group? Not if you judge by Jim George, IS director at Pattsburgh-based Obio Valley General Hospital. George would like to inoculate the baspital

#### SEMPRATION MAD

# Under 40

# More open to change, adaptive

- Better trained and up-to-date
- # PC-oriented and experienced
- More loyal to their companies Ootimistic shout their financial
- prospects for the nent decade More confident that young people can be 15 ianovators

- Well-rounded and experienced
- Less convinced that IS offers Less convinced that today's children will have a hetter quality of life than their parents

ences in the skill set of younger and older IS pros. it was less clear which group's skills were seen as superior.

Younger developers tend to look direct pline," George says. A third-generation developer who looks back on his training on an old Univac as rigorous and beneficial. George wonders whether the generation that grewup with PCs and user-friendly interfaces has traded depth for Televerness

which doesn't really cut it in IS. But Ron Flink, director of IS at Rve. N.Y. based specialty metal products manufacturer Handy and Harman, Inc. concedes that newer tech pologies are passing

some old guard members by. "I bate these slick consultants who write that if you're over 50, you're dend," says Flink 59 "You're not But there are so

can't bridge the gap." He continues, "Some of the old IS proteccionale ter to execute mainframe tooknology with all that's being done with, say, client/server. They think it's all the same, but they're wrong. You don't just take out a

template and write pages and pages of Co-\*Company loyalty. While most respon-dents under 30 agreed that staying loyal to one company is key to advancing an IS enrior 59 80s of their collegeness in the 30-30 are bracket, and an equal percenture in the 40-plus group, disagreed. The gap, at

One's stand on company loyalty, notes 30-year-old Susan Alexander, probably has more to do with your berth than your

If you find yourself in an organization where IS is nectorenized - and that Bules. tupately accounts for the majority of them - you've got to move on," says Alexander, tor of IS at The William and Flora Hewiett Foundation, a nonprofit organiza tion located in Menlo Park, Calif. Sticking with such an employer, she adds, "isn't loy-alty; it's martyrdom."

If IS professionals of all ages generally agree on the state of their profession, they are even more solidly united on where it should be bended

Of 40 questions asked by Computerworld ranging across categories from quality of life to technology, business, life in IS and professional goals, two topics drew much stronger agreement than any others: the importance of monding time working directly with end neers and business' need to be more responsive to the mounity and the environment It's absolutely imperative for IS to be

usingly embedded in the business units it serves," says Thomas Charbonneau, manager of corporate information services/business admintration at Framingham, Mass, based audio equip-

Corp. "And I think this is ally noted. And the urgency of working directly with end users, he adds, goes well beyond the realm of being politically correct. While preaching about melding with user depart-

ments still outstrips practice. Charb neau says, the talk/action map is closing To really do our job, we have to know

and serve the business users' latent needs," he says, "That's not something you can get from the outside looking in.

Relying on users nneau says Bose got neer religion about five years ago, when the demands of a mammoth new manufacturing resource planning system implementation forced an IS team to work constantly with -- and

take direction from - the manufacturing group in charge of the project. Today the team, now enseeneed in the manufacturing unit, has grown from its original complement of seven IS professionals to approximately 20, complete with

And it's not alone. The team's suchas spawned three more mixed IS/business teams, resident in the earineering systems, direct marketing and sales and marketing business units.

## "I 800 a lot of PCs out there getting used about an hour a day.'

Jim George • Ohio Valley General Hospital



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The lesson is clear: Success at it weaving business goals and technology will be met more easily when IS professionals are seen as valued insiders Sadly, even in Silicon Valley, many remas noted, this acceptance is still are. In fact, many said that if a stubb

ide gap exists, it's between IS and th rest of the business, not between older and r computing prolessionals But there's good news: 70% of those polled say the chasm appears to be aur-rowing. Craig Maraanka, chief informa-

on officer at Culver Chy. Calif.-based E. V. oberts & Associates, Inc., an adhesives samplacturer, says be thinks the answer to closing it completely lies in popular cul-

"All it would take would be a new Tom

Peters to write a book about the critical re lationship between IS and hasiness, hit the talk show circuit and become a media daring," says Maranaka, referring to the management consultant whose blockbuster In Search of Excellence fueled the mid-1980s entrepreneurial b

2.37

Beyond that, Muranaka adds, one more thing is crucial for bringing both camps to gether: "Guts - on both sides of the IS siness equation.

There are blue sky opportun there. If we only take them, "be says, eiting the near-legendary IS-fueled success of Pederal Express Corp. "There was someody out there who was neutely aware of the use of technology - and som

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# Product Spotlight: 486 PCs

Deals abound, but beware of pitches that provide more

problems than value rices on 486-based PCs are falling so fast that hayers are having trouble keeping track of this week's lowcost vendor. It should be simple to cut an incredible deal on a PC. Right?

No doubt about it, you can pick up a 486 for cheap. But combine the volatile pricing with the abunda of processors, vendors and channels, and many huy-ers are left scratching their heads. Name brand or third-tier clone? 486DX2 or 486SX? Mail order or retell?

The bottom line is, it takes more than price to make an in-Users have to strike a careful balance between price and

the need for a quality system that does exactly what their applications require. What constitutes a "Best Buy" depends on what your needs are and how you plan to use your PCs Are your stand-alone end users clamoring for a box that will let their graphical user interface fly? Will your 486s serve as

the engines for a companywide, mission-critical database anplication? Or do your bean counters need a coprocessor to crunch their spreadsheets? How well a given system will meet each of these needs de-peods on the type and speed of the processor as well as the

Knowing what to huy is only half the battle; you must also know sohere to buy. Can you count on the goods from a storefront operation, and will service be sufficient from a mail-order vendor? Where (and how) can you leverage the volume of your

purchase for the best discount In the following pages, you'll find practical advice — qseklists, cavents, coosultants' choices - for purchasing the 486 that matches your power and reliability requirements hoot exceeding your spending limits. Users who've taken the plunge also share their experiences. A leading consultant

even nutrit's user to look twice hefore buying a 456 at all.

In short, we've rounded up the practical information you'll

end to make an informed decision when huying a 486 PC.

And still saye hundle.



150 USERS, WHO BATED THE TOP 486 PCs IN BUYERS' SCORECARD, RANKED THE POLLO CRITERIA AS MOST IMPORTANT IN MAKING

- Software compatibility 2. Reliability
- 3.
- Performance
- Vendor responsiveness Technical support
- Ease of maintenance Configurability
- Ease of setup

- Hardware compatibility
- Value for the dollar

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# Discover someth possible with an

Stare here for 15 seconds.



# ing never before \$890 terminal.

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Introducing the VY-325 color terminal for only \$890. (Yes, you can believe your eyes.) It's ergonomically advanced. It emulates general-purpose terminals such as DEC, ADDS, TeleVideo and, who would have guessed. Wyse. And the VY-325 replaces a monochromatic terminal without making changes at the host computer or to the application. Although this list of benefits could go on, the price alone should color your thinking about terminals. If you call your local distributor or call use 1-800-CET WYSE.

# Beware the bargain PC

#### By Andrew M. Scybold

Though this may be the best time to find a barmin 456 PC, it's also the best time to end up with a system with lower quality components than you need if you aren't careful.

In addition to the "name" broad PC's there are literally hundreds of vendors assembling sys tems and selling them through every type of computer outlet. Companies with sufficient PC sup port canabilities and resources can cartainly find

Many storefronts offer quality products at very attractive prices, and some even offer the "build to order" type of sale where you discuss your rerements and they assemble the various bits

Some of these systems might be considered wise purchases for the savvy PC buyer. But this channel is not for every company, and caution is needed when dealing with vendors and suppliers. Only those who feel comfortable work instantes the bood of the system (or who have a technical



Many of these low board. After the first ek of operation, you

wer) should venture into this tier of wende The "enrum door opener test" is an informal way to determine whether you can safely purchase a system through these channels:

\* if, when your electric garage door opener qui working, you pick up the phone and call a repair person, you should avoid the harmin, no-no sellers and deal with established or name-brand systems that include extended warranties. \*If you experiment with the market door opened

- changing the battery in the remote control looking for obvious obstructions - then you are a prime condidate for not only the "full service" yender but also the vender/retailer that offers systems with less recognizable names, which you might want to purchase and configure to your

· If you do not stop working on your surper door opener until you have dismantled it and fixed it: then you can walk into any store and purchase Dieces and parts and "roll your own" systems. oftentimes at considerable savines

Quality control When purchasing a computer that has been assembled in front of your eyes or that has been preconfigured but does not include a familia brand name or warranty beyond the sellers' own you should cheek and verify the following items · Power supply. What is the capaci-

ty of the power supply? Many low end products cut corners and provide sumplies that will not support more than the basic system. Add on cards or drives will fry the system. \*Case construction, is the metal

case rigid enough to support a monitor? Does the computer chassis slide in and out easily, scating properb? When the system is asse hied, are add-in cards installable without being either forced into the connector and the board and/or bent to line up with the elete at the back of the case! Many huyers do not try to insert

an add-in card until they buy the mischine. Then they find out that the generic metal case and the mot board do not align properly; making it difficult, if not impossible, to add cards into vacant slots

·Keyboard, Try the keyboard for feel. Many of these low-end systems include a "thrownway" keyboard. After the first week of operation. you will be back at the store upgrading it to one that feels right. ·Monttor. Look at the monitor

encellingtions closely. If the specific cations for a Video Graphics Array (ViA) or Super VIA munitorete not include dot pitch spees, or if the spees state that the dot pitch is higher than 28, do not buy the monitor. Brands to consider

TOP 486-BASED PC BRANDS SELECTED BY COMPUTERWOOLD

Acer America Corp. AST Research, Inc. Compaq Computer Corp. Digital Equipment Corp.

bave a dot pitch spee of 31 or eyes .33. Also, make sure that the video adapter card

and the monitor are compatible. Many times a video card will be is cluded that does not properly support the monitor. If the monitor is capable of Super VGA or Extended Graphics Array resoluions, make sure the video card either comes with 1M byte of rundom-access memory or that it can be upgraded with plug-in memory. mentation. Is there any? Is it just a series of small pamphicts on each individual compo-

nent, or is it "systems-oriented," beloing you up derstand how the pieces work together? BIOS. Finally, check the BIOS. If it is from one of the major vendors - Phoenix Technologies Ltd. American Megatrends, Inc., Quadtel or Award --

inces are you will not encounter any surprises as far as systems integration is engerned, if re is no name or an unfamiliar name on the BIOS, the safest bet is to pass on the system. The quality of the system is not the only imp tant issue. The longevity of the company is also worth consideration. If the systems you purchas-

are from a small retailer or single-location dealer and the only warranty being offered is directly from that dealer you should ask the dealer has ong it has been in business under the same name it is better to spend a few extra dollars than to

ra a "bargain" system to the store - only to find out it is now in the pizza business. Sestuald in editor-in-chief of industry newslotters "The

Outlook on Professional Computing" and "The Outlook

# Lowdown on 486 chips

Are you confused by the alphabet sox of 486 chips that are on the market? Here's a quick primer to help keep all straight and prevent you from buy ing a DX2 when you want an SX or an

From the user's perspective, speed is the primary diffe various offerings: DX2 systems are faster than DXs. followed by SXs and then SLCs. (Cache size and other vari ables can affect this hierarchy.)

Within each chip type, a higher cioci speed obviously yields faster process-

Some software, most notably Autodesk's, Inc.'s AutoCAD, requires a coprocessor; users need to doubte check whether their applications car run on the Intel Corp. 1498SX, which has no built-in concoc

>Why the DX2?

The DX2 works twice as fast insid does outside. For example, the 33/66-MHz DX2 "thinks" at 66 MHz but com municates with the rest of the PC as if it were a regular 33-MHz chip.

The advantage of such a chip is that it can work in a system designed for a 33-MHz processor. Users can apprade a 33-MHz DX processor without modivendors can put out a DX2 system wit out having to design it from the ground search and development savings to the

b The Curty or The Cyrix Corp. 486SLC has the same pin configuration as a 386 chip, but it es software in the same manner

as a 486. Competitors say the Cyrix chip The bottom line for users is this: All other things being equal, a 496SLC system will be faster than any 388-based PC and slower than an intel 486-based system, according to Michael Slater, editor of the "Microprocessor Report. As to whether it's "really" a 486. Shat-

intel 496, but it's a gray area, if I bave a very fast two-door sedan, can I call it a

>The "crippled DX" controversy.
Detractors initially protested that the 1496SX chips were full-fledged 1486DX ssors with the internal math coprocessor simply disabled. That tactic allegedly gave latel an opportunity to hilk users by inter selling them an addi

er total cost. The original 4868X chips were in fact altered DX chips, "but that was just a time-to-market issue "according to

The SX processors currently shipng from Intel are redesigned, with the ernal math coprocessor completely insted from the die.

"I can't work my VCR and they're expecting me to understand this?"

-Richard Link, Administrative Assistant

"This was a big investment. I'm still waiting for the big return."

-Peggy Turner, CFO

"I thought you said these were going to increase productivity."

-Greg Collins, Office Manager

# Presenting a con company created by

During the 1980s, personal computer use increased by over 5000%. Even so, some industries saw productivity in-

crease by as little as one percent. Surprised? Probably not, if you

have been listening to the complaints from people around your office. Most often, you hear that computers are difficult to work with or too hard

to learn That's where we come in. We're ExecuTrain, the largest computer training company in the country. ExecuTrain has over 65 locations in the U.S. and five locations in the United Kingdom and Mexico. We've grown this large by helping companies like yours get the most



We offer over 125 ferent courses. Here tust a few of them:

Oversiew of PCs becaseff Windows DOS

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WordPerfect
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Ventura Publisher
Paradox
dBase IV
Microsoft Escal
Lotter 1-2-3\* Microsoft Wood

dence" for Window Harvard Graphics Quartro Pro ' And many more

side in a flash. And all our rooms come equipped with computers, an overhead, a markerboard, as well as a special projector that shows the instructor's computer on a large screen.

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about something, our instructor can be by your

Once our instructors have introduced you to vour equipment, they'll introduce you to our courseware. There is a diskette for you to use in vour practice sessions and a course manual that makes learning programs such as Lotus 1-2-39 as simple as learning VOUR ABCs.

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# nputer training popular complaint.



one single concept. No long-winded computeresc here. Just straight talk about whatever it is you're working on. By the time you're

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on being ungule to an expert side in gifty codes, praise insurancies. bability to work your way inside and out of your computer software. The second will be your diskette and course manual. And the third will be our telephone number, which you can use as often as you like when you need one of our experts to refresh your mem-

ory about the software you were once trained on.

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Our guarantees says, pairs and simple, that if you're not satisfied with our program, we'll offer you free effective courses, or your money back. We also have sullimited phone support in case you have questions about the software you were trained on.

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# **Buyers' Scorecard**



# Mail-order vendors prove their point

DIRECT-SALES PC vendors sh have come since the days when the mail-order have come sance the days when the man-orser channel was considered a risky way to buy. In the Buyers' Scorecard poil on 486-based PCs, corporate mers give the highest satisfaction scores to Gateway 2000, Inc. Overall, mail-order vanders took the Top 2 places ahead of AST Research, Inc., Compac Computer Corp. and 18th, which have traditionally worked through reseiler

In particular, the direct sellers carped significantly higher scores in the area of value for the dollar. However, IBM's new ValuePoint line and Compaq's hot-selling ProLinea systems, which are too recent to have had an impact on this sur-vey of currently installed systems, indicate an inereasing willingness on these vendors' part to

Gateway 2000's 486-based systems topped the ratings with an overall score of 85, two points ahead of Dell Computer Corp. and follow AST Research (82), Compaq (80) and IBM (78). Some of the vendors produce several different ines of PCs with 456-based models. For example Compaq 486 systems include various DeskPro

desktop models. SystemPro servers and others The response base for each vendor included users of any 486-based system which that vendor

Most of the respondents (68%) said they are using stand-alone models rather than servers

Gateway 2000, which is based in North Slowy City, S.D., was the No. 2 vendor in terms of 486 nits shipped in 1991, with strong results also ex-octed for 1902, according to Bruce Stephen, an analyst at International Data Corp. The compa rose to prominence in the past few years based

Gateway 2000's systems earned the highest ore in value for the dollar but also posted good marks in reliability compatibility and performance. In verbatim responses, a number of uners

med service as a relative week ness Dell users gave their systems high marks in Stware and hardware compatibility and reliability. Surprisingly, Dell earned lower scores in

ess of vendor service - an area the nav prides itself on AST Research users cited their systems' case

of setup and variety of upgrade options as partie-Compag respondents - most of them DeskPro users - said they liked the systems' reliability

but indicated relative dispatisfaction with the pany's service and support. They also criticized Compaq's use of proprietary parts, which they said make the systems difficult and expen-

Similarly, users said IBM's Personal System/? PCs tended to be reliable performers. The primary complaints stemmed from pricing issues:

fBM's lowest rating was in value for the dollar. Buvers' Secrecard records users' satisfaction with their installed technologies. Users assigned 1-to-10 ratings based on their satisfaction with their 486-based PCs in 13 specific categories, Users also rated the importance of each category. All 13 categories were factored into the final

ores. The scores for each product in the six most important entegories are listed in the tables below. (See the methodology on the following page for a complete description of the scoring

### 486-based PCs

Total scores reflect user ratings for 13 measured areas, weighted by user-

TOTAL POSSIBLE SCORE (1979) MEAN SCORE (197

HIGHEST RATINGS LOWEST RATINGS COMPATIBILITY
HARDWARE
COMPATIBILITY
VALUE FOR THE 85 · SOFTWARE COMPATIBILITY · HARDWARE COMPATIBILITY · RELIABILITY . UPGRADE OPTIONS . VENDOR RESPONSIVENCES . TECHNICAL SUPPORT 83 . VALUE FOR THE

· UPGRADE OPTIONS OCCUMENTATION CONFIGURABILITY

\* SOFTWARE COMPATIBILITY \* HARDWARE COMPATIBILITY . VALUE FOR THE

80 · SOFTWARE COMPATIBILITY · HAZOWARE COMPATIBILITY · PERFORMANCE . VALUE FOR THE BOLLAS • UPGRADE OFTIC

LIKES: "The price."

DISLIKES: "The customer service is unsatisfactory."

suld you buy the product again?

78

LIKES- "Outl DISLIKES: "M

low price." Would you buy the product again?

ald you buy the product again?

# Servers: Not the thing to skimp on

By Andrew M. Seybold

THERE IS one place in your enterprise where it makes little sense to take any risk on a "bargain" 486the network server. While a high day's low-end desktop price wars, priced, high-quality server will not guarantee you a trouble-free network it will containly on a long way toward providing you with more uptime - the most important com-

odity in the network. Don't eut corners, and don't pur-chase a system that uses oddball disk drives or other components that cannot easily be replaced. Other items to check include the rating of the power sapply, the total memory eagacity of the main board, the number of slots for add-in cards and the number of bays for add-in storage and backup devices. This truism applies more for servers than for most other PCs: You empot have to much speed, too much storage or too much memory. If there is going to be a bottleneck anywhere, it will be in

the server You can employ a desktop PC as a server however, the high-end products designed for server use permit more memory and more hard disk

You will pay more for a high-end server, though. Compared to to-

these systems have dropped in price very little during the past year. In The new corporate standard

hich type of PC is your comp



fact, just before IBM-ano new Personal System/Valuepoint desktop systems. It raised its prices on high-end PCs and servers. With the higher prices, bowever, come a number of other advantages

to purchasing a PC that has been "bardened" for server duty. Typically, these systems have larger power supplies (250 watts or more) and more hard disk bays, CD-ROM, tape backup systems and expansion slots than a typical desktop

Many of these systems can be equipped with a pair of same-size disk drives so that they can perform mirroring. That is when both drives run at the same time and record the same data. If there is a failure on

er Tape backup or mirroring is crit ical for a server. In some comp when a network server goes down. the employees go bome, as they literally cannot perform their work ac-As networks grow in size and

complexity, many companies are us-ing multiple servers. The first split ally pecessitated by the aumber of overs on a system. If one department has a need for beavy, server-based use, this can slow down the

network for other overs in this case, the options include solitting the network into sections

and adding other servers with g ways between them or splitting the server functions. Some users configure one server for printing only. our for communications and one for

programs and data Many of the systems designed for the low-end market can be used for servers, but again, the buyer has to make sure that the systems can handie the requirements of a server and can withstand the continuous duty modes more withted for them

everal firms are touting the use of networks. At this point, the leading operating systems do oot support the management of multiple pro sors within the same machine.

As is the once with all one coali tions, there are times when a multi-processor-based server makes sease. However, at present, these units require lots of individual configuration and attention to detail to function properly. For now, two septogether via a guteway, makes sense in most cases.

	P	offie of users who rates RESPONSE BASI		icts	
Primary operati system	ing	Clock speed of processor		How long have yo this product?	u used
DOS only	54%	33 MHz	65%	More than 24 mor	ths 179
Windows	27%	25 MHz	15%	19-24 months	119
OS/2	13%	50 MHz	11%	12-18 months	349
Other	5%	Other	6%	7-11 months	139
Unix	1%	20 MHz	2%	4-6 months	149
		66 MHz -	1%	0-3 months	117

#### BLIYERS' SCORECARD METHODOLOGS ames were obtained from nonvendor sources. First Market Rese

net's score in the first entegory by the user importance rating for that entegory to obtain the weighted score. 2) Repeat the process for all remaining entego ries. 3) Average the resulting figures for the average weighted sourc. 4) Convert the average weighted score to base 100; the ratio of the average weight score to the average user importance is equal to the ratio of the overall score to 10. Numbers are rounded off where accessary.

Computers orld thanks the following for their assistance: CW Dat Division: Bruce Stephen, International Data Corp.: Computer Intelligence

LIKES: "Upgradability, overall reliability DISLIKES: "Slow technical support."

REASON.

Would you buy the product again?

8.2 8.1 8.0 8.0

LIKES: "Reliability and IBM service." DISLIKES: "Poor price/performance

Would you buy the product again?

RESPONSE BASE: 150 USERS

9.0 8.5

# Lab report: Anatomy of the Khornerstone benchmark



NCR Corp.'s 3445 estem is the fa 486 marbine

averding to the

nomerstone, a wid used benchmark that is made up of 21 eparate tests consist

at left oth NCR and ATAT do well in the beacher products were

designand as mobile network servers. If the lests were can be DOS the results would be half as strong

ented by ABS/A station Labs.

colistic measuremen

# Cheaper by the zillion

By Andrew M. Seybold

BUYING a high volume of 486 PCs presents its own set of chal-

Although the customer is king at the moment - even more so when he is purchasing lots and lots of 45tis — it is especially erugial in volume agreements to be very clear on exactly what the hystems requirements are and what the follow-on service and support services need to be

Even then, some vendors may try to meet the letter of the law without actually matching all of the buyer's expectations.

Several companies that have just completed the purchase of a large quantity of machines did not get exactly what they want

446-based systems with Video Graphics Array monitors, DOS 5.0 and Microsoft Corp,'s Windows 3.1 louded, a large hard disk and 4M bytes of random-necess memory in each machine The law bidder, anxious for the volume business, provided

machines that met the specifications. However, while the vendor supplied the proper monitor (the specifications called for a dot pitch of 25) and the basic system, it cut corners on the

Once the PCs were installed, the end users complained hit terly about the feel of the keyboards. In the end, the company had to throw away and repince several hundred inferior key-In another case, a company purchased several hun-

for use on a network running Novell, Inc.'s NetWare. It took delivery of the systems — all from the same vendor and all the identical model number - during a six- to eight-week period. After installing the first group in the network, the company found that many of the systems received in later shipments were different from ones in the first group. After some investigation, the PC vendor admitted changing BIOS vendors, inte

grated drive electronics controller vendors and even hard disk vendors on the same model to save a few dollars in the man One of the systems I tested came loaded with DOS 5.0 and Windows 3, 1 but did not include a mouse or even a mouse port

I had to supply my own mouse and attach it to one of the serial ports (thus losing the use of one port). Another troublesome practice that even major vendors are starting to follow is that of providing all of the software on the

hard disk but not shipping any floppy disks. This can be a dan-Intesting various PCs, I found one system that froze when I installed a 108ase-T network eard. Because this was one that

71% 7196 51% 29% 14% 15% 13% 13% 12%

1196

# Power hitters

nd all the power a PC can brit

dicrosoft Corp.'s Windows, be sure the pred on the system.

ig the ability to do this, you should run the untee Corp., or run Intel Corp.'s newly rele

had not been shipped with a floppy disk copy of the operating system, I would not have been able to get into the system to make the pecessary file changes if I had not had a set of my own bootable

In another vendor's system, installation of an internal/fax/modem card crashed the system and destroyed the COMMAND COM file on the hand disk. ft was accessary to reload DOS and start over again. If we had not had a copy of DOS on a floppy, we would have been out of luck; no disks came with the machine

The lesson you should learn from all of this is to be very careful in planning your purchase and choosing your vendors, particularly when you are looking at a volume discount. 486 prices have fallen to the point where you can truly score a

burgain and still receive equipment that is highquality and reliable. The following steps will help keep you out of trouble when you make volume purchases.

# Write a detailed set of specifica-

tions. Require that all systems come configured exactly as you need them, and make sure the specifications prohibit a vendor from making any changes to critical components such as the BIOS, floppy and hard drive controllers and serial and paraltel ports.

## 2) Casting for extras

If possible, purchase some "spare" system With 486 prices as low as they are (and falling), it is easy to tack a few more systems onto your order. Spure computers provide instant replace ments for systems that are down, as well as spare

It is also much easier to trouble shoot problems

## 486 PC street prices

NG ARE SELECTED STREET PRICES FOR SYSTEMS THAT CAN SERVE AS A GUIDELINE FO GETTING THE BEST DEAL ON YOUR D

#### Top 3 overall (by price)

Vender	Model	Chip/ Speed (MRs)	(K byten)	(M bytes)	Cather (Carles of System)	tiet price	Seement prior
Occidental	25-MHz 4865X	1486SX/25	4	170	-	\$1,595	\$1,346
ALR	Flyer 320T 45X/25	H8653/25	4	170	-	\$1,749	\$1,500
Galarany 2000	25-MHz 486SX	1486SX/25	4	250	-	\$1,575	\$1,570
Compaq .	SystemPro 486/33	1486DW33	8	420	512	514,999	\$12,658
Zpolth Data	Z-Server 450DE	1486DX/50	8	500	256	\$7,499	\$7,734
AST	Premium SE 4/50	148600/50	8	500	256	\$8,605	\$7,A38

486SX/25	Model	(K bytes)	Next disk (N bytes)	Cache (K byses)	Link	Street
Occidental	25-MRtz 486SX	4	170	-	\$1,595	51,34
FRAM.	PS/2 95XP OH9	8	160	-	\$7,475	\$5,963
Autoroge		~	-		\$3,208	\$2,134

	48600/33		211	128	\$2,000	\$1,650
Compaq	SystemPro 486/33	8	420	512	\$14,999	\$12,658
Average					\$5,046	\$3,405

Compadyna	AMGDX/50	8	210	128	\$2,200	\$2,160
Zunith Date	Z-Server 450DE		500	256	\$7,A99	\$7,734
Average	-1-1			-	\$6,664	\$4,712

Compadyne	486000/50	4	711	128	NA.	\$1,850
max.	PS/2 90XP-OLF	8	400	-	\$7,415	\$5,887
Arrenge					\$4,215	\$2,897
486DX2/66						
DEC	DECPC 464DZLP		120	128	\$2,199	\$2,199

Average		-	0.00	MA S	3,237
CEY:	Least expensive	Mos	at expensive	Av	erag

Don't just settle for one round of dding. Oftentimes you can better the first price you receive by going around a second time. If you have a favored vendor, it is possible to 'push" that vendor somewhat by letting it know that it has some competition

if you have another computer on which you can try to daplicate the

sist that you get at least one set

of master disks for each operating

system and/or program that comes

loaded on the system. If possible

make sure you get a complete set of

installation and support manuals.

4) Try, try again

# Remember service

specs. Determine ahead of the bid Ask for a award exactly what service and support is included. Add bid sample system to stion to the bid reconfigure and quiring the vendor to change out a system that is "dead on arrival" or that fails during test vour the first few weeks of opera way.

# Ask for a bid sample system, test it out, config it exactly as it will be in your system and ti

insist that each and every machine delivered is exactly like the bid sample.

Price protection.
 If you are purchasing a large number of system

for delivery over a long period of time (six months to a year), insist on price protection. In other words, if the conjuny reduces the list price by 5% during the delivery cycle, make sure you will got a price adjustment, at least on the systems you have not yet received. If you are a really good negotiator and if the order is large entough, you may even be able to obtain a rehate on the systems are you will be to obtain a rehate on the systems. tems already in place

8) Money talks. Offer payment terms that will motivate the ver

Otter payment terms that will moltraise the ven-dor. Even the largest vendors are concerned about cash flow. Suggest payment terms that pro-vide a portion of the payment very shortly after their very but hold back a final portion of the in-voice until acceptance of all of the units and veri-fication that all of the specs have been met. Ask for a discount for net t0 days if your o

pany can turn an invoice around. You may fi that you will get an additional 1% to 2% discou by maying for the systems quickly .

# Who needs a 486 PC anyway?

By Stephen Rood Today's 156 PC story is as follows: Priese are low, the marketing hype is high and

But do you and your users really need a ANKERYS

more times than not, the answer is no. The question to ask bere is not "What is today's lowest price on a 486 PC?" but Well, it depends on many factors, but "Are we really in need of such technology

#### in all cases, regardless of bow attractive prices may be?

Before I become a target of much wrath let me profess my total support for the 486 pintform. It is a great processor, and there are your most PCs built around this obin-However, this technology is overkill for the

such as Intel

ereat majority of end users We are led to want these newer machines through a very effective marketing

# Hackers? Viruses? Toll Thieves? LAN/WAN Crash?

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TH INTERNATIONAL COMPUTER SECURITY & VIRUS.

Corp., the PC manufacturces and the retail channel trade With a growing com netitive have Intel must keep innovating in chip design and

marketing to maintain its murket share and stock price. 4 It seems like only yesterday that intel

is featured a spray-painted, crossed-out 286 logo. They made us want to forget the 286. Now intel would like us to forget the 386 for the 486

Productivity unproven Faster 386 mechines don't necessarily

translate into greater end-user productive ity, and I have yet to see studies that go beyond laboratory benchmarks. If users need to buost hardware performance, maybe a simple memory upgrade, cope

cessor addition, new hard disk or graphics eard replacement is more appropriate Before you succomb to the sales pitches. take stock of which applications your us-

ers are really running on their PCs.

If they're dedicated Microsoft Corn. Win down users, yes, performance on a 4NEwill be more dramatic. If your users plan to run Microsoft Corp.'s 32-bit Windows NT, OS/2 2.0 or Unix, performance requirements suggest a 486 machine. Users of compute aided design packages need the power of a 186 for its improved instructional set and processor cuching. The same holds true for users of high-end graphics packures and statistical forecasting and modeling

Finally, if you're designing a PC network comprising 10 or more workstation nodes, a 496 will perform more efficiently than a

380 machine as the server. The point here is that users need to resist the temptation to purchase the latest in 486 technology just because "prices have never been lower

The bottom line is that the 486 technology is a great investment and cost-justifiable when selected to address particular application needs. But Windows NT basa's even been released yet. How/soon will we see a lot of 32-bit ap-

plications software? The ever technol ogy is great. Track it, and keen up with he sents. Just don't fall victim to the

marketing programs. esident of Osstring, N.Y-based Road & Associates, Inc., an tS consulting firm. Previously, he was meaning of information technolservat Contern & Lybnusd.

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"In support own services in our subscribers, we at this Cons Bire Sheld of Connective here resoluted on on organism project the well ask as from 50 workstatems in almost 2000 Bir. Joseph See Goldstor had the man complete like of Natra Filing products and the nobused support to state at an designant and implementing file workself has as in designant or implementing file workself his two saying for as."



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# Voices of experience

Although for

some

customers.

price is a big

factor, it seems

to mean

nothing to a

surprising

number of

them.

By Robert M. Knight

Decisions about where and how to tain the best buy in 486 PCs are be on the individual priorities and orities and expo er. Here are a f

When Robert Selff decided it was time to replace his Intel Corp. 80388-based PCs a year ago, he knew exactly what he wanted in an 1486 machine, and he knew exactly where to m to me it

I just said to the local reseller. This is the case I want, this is the system board. this is the power supply, the hard drive and int of memory 1 want," says Seiff, an electronic data processing techni-

cal support specialist at the Cherry Textron subsidiary of Textron Corp. In.

Santa Ana. Calif The system board is the major component of any PC." he says. "If you hay cheag, you have prob-

At Santa Am reselfer Micro- City, Selff says. Then promptle it all for nothing since there's nothing off the shelf like (his particular list of components]. Our 486 is half the cost of one from Compaq Computer Corp. or IBM - about the same as

a clone, but I know what's in this one One reason why Selff is so picky he explains, in because 486 PC's are fast become ing the company standard at Charm Toxtron. They are key to a local-area network provides computer-aided design (CAD) software from Autodesk, Inc. in Sansaito, Calif., as well as an in-house

tooling management package for cost accounting. The company is also attempting to gr

unity move payroll software off its iBM meinframe onto the network according to Selff.

Needs speed For Bob ( the purchase deci uina comos more

from a long process of "kicking tires and wheels. According to of data processing at AAS Bailding Systems, Inc. in Carryllia Toon fast resource time has made the 4w the standard for

соправу:

7% -

as storage buildings, aircraft hangars, cur dealerships and professional buildings The only exception Golloway says is When sumoune needs a "stand-alone deck top operation where we can nick up a real cheun 350

Even at that, Gallaway hasn't had to not too much more for a 186. "I noid \$2 000 for a 33-MHz 356 about a year ago. Now I've got a 33-MHz 456 for about \$100 more. And I have clock-doubting capability that gives ms R6 MHz "he says

The 486 is at the beart of Black & Decker Corp.'s power tools and home products group in Towson, Md., as it attempts to bring about 30 sites across North America into a single network, according to Don Lee, vice president of information systems

technologies for the "Next, we want to net work worldwide." Lee-

Such a network below. with it consend functions that he considers missign-critical expecially electronic mail which supplies the operating numbers that are rolled into revenue and expense statistics used to men sure monthly company

Breunse we have for cilities worldwide the fax cubulifity of a 486 is etant." Lee says in Towson, the Black & Decker group works with about 30 computers attached to a LAN housed in a three-building cam pus. But as the company expands the range of its networks. Lee says, he expects to perpliate agreements with its resulter

System Scarce in possible Dollar on a bish

will include leasing as well as purchasing

new 196 machines

Making a deal

Purchasing the best 486 computer does pol always encompass just price perwater software and price/performance

according to Lee. "You don't need tu cummit out frost large-volum newhater, had you du need tu'share

tentions to set up a vendor relationship that allows for sig nificant discounts Lee says, "It's a environment, and you really should

co speed for Windows.

gether on a link from Network Connections in Alpharetta, Ga. The 686 machines han die word processing, database appli tions, file sharing E-mail, graphics, spreadsheets and some accounting and

compare several vendars and make sure that you've considered service, too Other users say they see relatively little

difference in quality among the many overhome enmosting for more delians. As a resuit there are more viable channels to search for a great deal We went through a reseller (Compa

Computer Service in Falls Church Vo 2 and got a markdown, but re-sellers aren't really necessary for us right now," reports Jeff Saper, network manager at Cadwalad or Wickersham & Talk a Wilderson Von York firm that employs a total staff of about 700 "PCs are a commodity at this point. and you're just as well off going to Compu-

Wants Windows The memory and processing nower quired by Microsoft Windows Com's graphical user interhee has become a mafor reason to huy 486s. in corporations and enterprises as diverse Cobb-Vantress

terland or Gateway

inc., a poultry breeder Siloam Springs. tek : Rendix Ocean ies naubaldiery of M. Bed Sietral Appropria in Arlington Valued the Breinese Network Division of AT&T's central region

in Chicago We're moving aggressively toward Windows, 'Lee says, 'We also feel the ne for expanding our processing power for graphics and client/server systems," he

The 480 machines have more RAM, a higger hard drive, a video card and they come with better screens," says Jim Lewandowski, a strategic revenue analyst and staff manager at AT&TC bleago. "With Windows, you're always in the graphics mode, so you need better resolution that

won't cause eve strain ' It was the prospect of using Windows graphics that convinced Philip Normand IS manager at Cobb-Vantress, to purchase a couple of 456s from a cutaion from Gat way 2000, Inc. located in North Sions City.

"Gateway was a little cheaper, and it in cluded a 15-in monitor on a 33-MHz 4NSDX with a boral bus architecture, as well as Ex cel, DOS, a mouse and Windows," Normand says, "But mainly, we peeded the vid-

Although for some 486 customers, price is a factor in determining which PC or closs

they will buy, it seems to be no factor at all for a surprising pumber of them.

At Cadwalader, 496 machines come to-

vroll, according to Saper In a law firm environment, all applica

es integrate into one common product; money," Super says. Thomas Holdbrooks, comengineer at ABB Environment Systems, Inc. in Disminsham Als. care. "Drice in not a factor. The major thing, because I come out of the user community is unseed

especially in CAD work bernaur it's so omputing-intensive. Granted, I'm not goto pay (wice what it's worth, but, A critical factor for Holdbrooks whose company supports a mixture of cinnes, is

expansion space. We make our one have county over room to plug in accessories like a graphics

Types of PCs pur ADEL. 27%

cards, accelerator board," he says. agrees that PCs even 486s, have become a

commodity He says it isn't nausual to find a 489SX in the \$1,000 orice mans Don't want For most 486 users

the features they get are the lessares they want. Some know what they don't want "I can do without the slimline case, and I don't care about havingeverything built in d" Normand says

Initially, we will not exploit the char lecture part of the 486." Lee says We don't feel we need some of the software that will run on a 486, such as the so

phisticated scheduling that is part of the Users of 486s seem divided on whether they would be willing to purchase the next generation Pentium chip just introduced

"I would go with the P5 because it will have more capabilities and horsepower that LANs are going to take," Saper re-ports. "It means that the 4% is going to beome what the 256 was when the 456 was

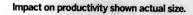
Some agreed with Holdbrooks, wh says, "I don't think we're ever satisfied. but the 48tis we have right now are serving our purposes, and we're looking into a five year life span for them.

Lee says he sees the life soon of 486 PCa at Black & Decker being "18 months to two

At Cherry Textron, "we're not going to consider the P5 very soon," Selff says. "I like everything to be stable with a new

technology first. Alex Koludrovic, senior engineer at Ban dix Occunies, says, 'I don't want to full behind because the revolution is happening so fast. But I think the 496 is going to last longer than other platforms.

Knight is a free-lance writer based in Chicago He tenches part-time at Northwestern Univ



1 percent. That's the total increase in corporate productivity since 1980. By contrast, investment in information technology over the same period billowed to almost 50 percent of capital spending.

There is, however, some good news. With the help of Andersen Consulting, organizations of all types have been 9792 Andrews Consulting, All rights recorded able to turn these numbers around.

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cesses have been synchronized with their new technology. They're the ones who believe that investment in technology is good. But return on investment is even better



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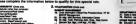
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# The client/server costs

Yes, you'll save, but only if you know what costs to expect

By Lynn Berg turn, on investment. In this way, they're sure to take advantage of realistic cost savings.

hen most people think about client/server cost savings, they envision the extreme dramatic stories about companies tossing out their mainframes, replacing them with localarea networks and saving millions.

True, moving applications off mainfrance and onto smaller systems could save you as

# Unexpected costs

growing (see story below). However, while many organizations are proposents of the technology they acknowledge that the savings they expected and onto matter systems could use you as made as 20% in barders could, will be made as 20% in barders could. What is also been interesting the proposed made as 20% in barders could. What is a white vit interestinated. That I because managed with the could be the proposed of the could be the

in a client/server covironment must also take care of those tasks but on dispersed systems. De-

ading on where a bottleneck occurs, for in tance they'll need to deal with the system the stance, they'll need to deal with the system, the network or pome strange, far flung hub. Whether Training occurs on the job or in the classroom, plan on spending some bucks to bring staff up to speed on PCs, LANs, PC applications.

Former big-system staffers will need to learn how to handle software asset management, configuration management, performance analysis, archiving, backup and other management activi-ties in network-based configurations. Mainte-

# Client/server is worth it, but . . .

## Product selection can be a hang-up Case: United Airlines

Reduced costs, improved compating efficiency and better employee school-uling were United Airlines' goals in shifting the company's CPU-intensive enve scheduling application from an IBM 2004000 maintena to a cli-cut/server-covironment in early 1980. Eighteen months later—six mooths

later than projected — the company reached its goals.

The project came in later than planned because the Chicago-based airline hadn't counted oo the amount of time it would take to investigate the pieth-

ora of available elicot/server offerings and train mainframe progra

According to systems analyst Steve Greenfield, United's information sys tens tours speat months talking with dozens of vendors, weeding out pure 'sellers of bardware and software' from those willing to act as consultants

recuers of nanoware and storware. From those withing to act as consultant and assive the company's questions about distributed architectures.

Our decision was sometimes not made around the best hardware or its cost but whether a veodor could nanowe our questions. Ne wasted expertise because from a technical standpoint, we were breaking new ground."

Greenfield says. Ultimately, United purchased processors from Silicon Graphics, Inc. and Unix-based IBM RISC System/6000 workstations running SAS Institute.

Unix-based IBM RISC System/10000 management. Inc. software for data entry, editing and file management. Client/nerver, page 172

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"Despite its low price, the ProSignia packs a variety of features."

"...For running Windows on the road, the Compaq LTE Lite/25c is clearly the best notebook yet."

\_PC Lantage, October 1992

"It is the best-looking color screen on any notebook, plain and simple."

—PC Computing, August 1992

"DeskPro/i...combines the traditional Compaq virtues of strong performance and technical innovation with aggressive pricing" \_PC Week, June 22, 1992

"Make no mistake about it: this is a strikingly energetic Compaq"

—PC Week, June 22, 1992.

"You'd expect technical leadership from Compaq, but the Lite/25c's aggressive price took us completely by surprise."

— Computing, August 1992

"...Compaq Contura 3/25 notebook is part of Compaq's clonebeater strategy and packs an aggressive price/performance punch.."

-PC. Magazine, August 1992

"That's leadership."-\_PC Week, June 22, 1992



Our alliance with Intel enables us to improve an processor technologies with such advances as easy-to upgrade architectures and sophisti cated power-conservation features



Compage engineers have already been improving our new affordable PCs. In fact, the COMPAQ Cantura PC is non available with a super-crisp, passive-matrix ViA color screen.



Continued from page 165

ers. They may also work at staging nance programming staff will need views of databases to help users do to shift mars because end uners will shale and exclusive he modifying their own newrons It is not enough, however, to hand

	programmers new PC- based development	
AS INCEPERATE GET COMMECTED, IS LA	tools. What's needed is a change of develop- ment philosophy at the	
Percent	of 15 bedget LABOR EQUIPMENT	highest levels in the IS organization. The ap-
Maintrano Minicomputer	55% 45% 60% 40%	ille cycle model in which the design is
PC (stand-alone) PC (sominal) PC (LAB westgroup)		planned to handle ev- ery possible eventual- ity, must give way to a systems design that is
PC (enterprise natur	mm) 41.4 39%	flexible and reusable.

Popul

no nonne methode

and generating their own reports ses and even applications. new thinking. Only then does it The 75% to 50% of programmers make sense for staffers to loan and time erect on maintenance will do annhe chille in Ca a focusth straces crease, freeing them up for new chtion languages and relational data ent/server development, inch setting up interim files for end us-\*Labor costs associated with

Toll It like it is Here's a definition of et/server, courtes homeot

Strauss & Co.: The ellest frame model divides applica tions into functions

and data that need to users - the "server part - and those that are nerticular to each user - the "client" part. Clients perform Bood and functions (managing the user in terface, collecting to put data, formatting

database query and re tion management at every remote ort requests). Server perform back-end Some IS departments think a way functions (managing to curb labor costs is to manage th backbone while abdicating remot LAN and system management re-sponsibility to end users. This may office second to

(see chart at Jeft)

One area in which this is particu-

larly apparent to in system and net-

work management. Vendors haven't

sive, centralized management of

distributed, beterogeneous sys-

ttime framer three to five sweet)

you'll need people to deal with soft

ware coordination troubleshoot

ing, belp desk calls and configura

not be a good strategy in the long

vet provided tools for comprehen

system and network may run. When contralized me ment. While technology costs might finally becomes possible, it may be decrease in client/server enviro difficult to regain control and conments (PC millions of instructions solidate sites. Labor costs may rise per second are less expensive, and as IS tries to bring management unhardware can be written off over der its domain. time) there exclans tends by affect by the high cost of additional labor

atlant casts Fu abling users to get at information anymbers on the network no motter where the user is is the powerful appeal of client/server computing. However, as network access to

stems becomes more common and access methods become more portable, petwork use costs become more difficult to predict. Users will be peers on the network, no matter where they are

I recently spoke to a telecom ma ager at a large company who discov-ered that an application involving isptops in the service departmen could increase the cost of dublic net ork use by a factor of four ·Capacity planning costs. Mos mainframe or minicomputer sys tems today have tools and guid lines to help figure out the igitial

Continued from page 169

Moving the scheduling system to a distributed architecture enabled Coited to avoid a main frame upgrade that, computer systems engin-Jim Schneider says, would have cost between \$3.5 million and \$4.5 million. The new architecture has also more than doubled the CPU time available to schedule analysts for testing and to set up monthly schedules for the carrier's 8,000 pilots and 17,000 flight atter

The more CPU time the scheduling app tion gets, the better the results," Greenfield explains, "and the better the results, the less scheduling costs." Overall, Schneider says, United expects to save about \$1.5 million annually as a

result of the improved scheduling.

While client/server is hitting its stride at United, Greenfield cautions other managers against underestimating the amount of retraining a move to effect server competing involves. Inadequate training materials is one of the culorits. "There's and that says, 'If this is how you did thing in the mainframe world, this is how to do it in a client/server environment," be says.

Mainframe programmers must learn and be-

come proficient in capacity planning manage-ment and security techniques. They must also learn to work in a networked environment. What a commitment to client/server mor

a commitment to training." Greenfield says. "The typical scenario of coding and then releasing a demo doesn't work in this environment. People need the opportunity to learn and to play with all

of this. Despite the challenges involved with client/server Greenfield says he wouldn't turn back. "You take risks in exchange for the enor mous potential for reduced costs and improved processing," be says.

## Expect to labor over integration

#### Case: GTE Corp.

As recently as last year enstances who called GTE Corp. to place an order or request repairs had only a stim chance of receiving assistance without being transferred one or more times to u different department or service representative. That was not a most record for a company that

To that end, GTE decided to rip out its 20-year-

old "user-ugly" mainframe-based order entry system and move to a client immove comparties on chitecture, says Carl Schulz, vice president of Univ distributed commutant at CTE Data Son vices, the company's IS subsidiary in Tames. Fla.

Systems can debut in

one in IS must buy into this



The project, which is in progress, will ultimately five service representatives universal assess to ordering, service and repair data, in this way customers can call a single number for assis-

The first and most critical step in the \$15 mil lion migration, which began to April 1991, has been building an infrastructure capable of supporting Unix-based client/server application Schulz says. This has involved, among other things, building a separate Transmission Control Protocol/Internet Protocol (TCP/IP) network and implementing network control and management structures: establishing uverall client/server standards; developing experience in the Unix op

erating system; and training developers in the ( and C++ programming languages. From the beginning, our emphasis has been on potting our time and energy into the infra-

structure rather than into applications, which, by comparison, are easy," Schulz says In June 1992, 14 munths after the project was unched, GTE completed infrastructure testion

and began replacing the desictop equip ed to increase sales. To improve service GTE felt it had to create a single point of customer 3,000 service representatives, swapping out 3270 terminals for X Window System-equipped workstations from Hewlett-Packard Co. Clients are linked over the TCP/IP network to HP servers. which house all application code and logie, and the mainframe, which acts as both database and

By the middle of this month, Schutz says, the new client/server system will befully operational. That date is two mouths later than the projected 21-mouth schedule. "I did not include enough time for modifying the mainframe system, which was a larger effort than anticipated," Schulz ex-

Another pitfull was underestimating the ti and effort involved in integrating various eli-ent/server system components, including sasti-ple databases and applications and a graphical

user interface system, Schulz says. in the old days, IBM did it all for you, but now we're buying packages from various vendors with products developed to run on multiple hardware plutforms. Many times it is up to us to find the incompatibilities," Schulz says.

# Integrating packages in-house also requi-additional memory and throughput capacity. Training can slow you down

Case: Texaco, Inc. Earlicen months ago, the challenge facing Te co, Inc.'s Scientific Systems Management (SSM) Group was providing users with seamless access to multiple VAX and mainframe-based databases containing oil exploration and production data Additionally, the company wanted to create a plug-and-play computing environment that allowed both new and existing applications to access data companywide. Texaco solved part of its prob lem by build

what Tom Peters, manager of SSM's data group in Houston, describes as a "virtual data server that combines a Sybase, Inc. relational database running on a Unix-based Sun Microsystems, Inc. server with a series of gateways. These gate were either developed in-house by SSM's 10-perron development team or purchased. The system replaces a proprietary datah

Meso on the reph five companies encountered imple ention clienthers

United Airlines' syst was off schedule by six took longer than gate oroducts and t stainforme program mers in Usix.

table: "People need the opportuni with att of this." - If Schneider, comp. systems engineer

rverd Community Health Plan underest mated the magnitude of security issues Workers' day-to-da stable: "Client/ server means a hug cultural commitme - Donna DeAngelin

> GTE Corp.'s effort to modify its mainframe system was greater grating client/serve potents, includi databases, applica-Hons and GUIs.

required much time ter "In the old ys, IBM did it all for systems purchase, monitor system use, partition work loads and help plan future purchases.

Unfortunately these tools and co publitties don't exist in the ellent/server world. For instance, IS cannot verform systems monitoring effectively seroes networks of PCs Work fonds are typically set up for transaction throughout not interactive file sharing or ad-hoc inquiry. As a result, capacity planning to vague: You're never quite sure if you've bought too much or too little Buying too much capacity is an ex-

nsive proposition made more so ecause it may keep you from moving to the pect wave of technology It's tough to justify moving to some-thing new when you've got more a enough system on hand

oo little capacity hits the hudget hard because in the long run you'll need a costly overhaul

My advice is this: When considering a purchase, make your vendor run your applications to see if the system can handle what you've got.

buying packages from

sit is up to us to

tries." - Carl Echuly

vice president, Unix

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Charles Schwab 8. Co. Moving to distrib-uted client/server arrhiterture besedon Open Software Foun dation protocols. Perneel costs report edly may hit \$25

Inc. Replacing Isolat finance, production, tems with server-

department can rting workstations lead Data Central Inc. Moving core app cations (inventory.

measures oicing, order man ples may forget to f tor costs such as training into the bardware, software and mainteneed hoars

nance equation, they may also over-

system linked to a Digital Equipment Corp. VAX, which will be phased out daring the course of the

The project took 18 months to build and cost about \$1.5 million (\$1 million for labor and the rest for hardware and software).

next year or an

Under the new client/server system, users necess exploration and all production data from intelCorp. 80386-based PC annd Unix workstations

using Sybase DBLib client software. Initial applications, which took twice as long as initially projected to convert, were brought ap

in April and target geophysical tasks such as map generation and oil well analysis. While using off-the-shelf database software eased the overall development and implementation process, SSM's migration to a elient/server system wasn't entirely problem-free, Peters says.

Like others before it, Texaco underestimated the time and cost involved in training both system programmers and end users. Training took 50% longer than expected and cost 300% more. Part of the problem is [Fortran] program mers' fack of expertise in the C programming lan-guage. Separating data from applications took

time - about nine months -and programming in a Windows environment was difficult and required a lot of training." Peters says. "Also, using networks takes more expertise than the average user has. This necessitates making them seam foss

Another warning Peters offers is that neither bardware nor software providers can furnish all of the answers "We found that software vendors had a hard time visualizing a client/server environment in an and-user setting because they hadn't had the experfence." Peters says. "We also had hoped that

the software had come further than it has. Some things just aren't available in the Unix world." he

Peters and his group ended up writing many of their own database gateways and routines.
"A commitment to client/server computing probably means a lot more than most people first think," Peters concludes, "The hardware is relatively inexpensive. But it is very easy to undere timate training and implementation costs in both

fity costs. Vendors are look these cost-cutting me many client/se applications and tools for the PC

and PC LAN environment.

However, because these applications and networks were designed to handle the communications needs of small workgroups, they aren't always scalable to a larger area i always scanner to a sarger and more demanding environment. The option, in many cases, is a cor by change — either adding multip

servers or starting again with a Starting with a robust server can ze acadability costs and probiems. While such a server can save you from conversion later on, he advised that you may sacrifice file-

Cost-cutting

tools are missing Case: ITT Hartford Insurance Group

"Client/server computing is not the asfest of courses, and you must be willing to pay for the

experience, but the rewards are there," says rymond L. Howell, assistant vice president of rmstion management at ITT Hartford Insur-

Tell me what's important TOP IS CHIEFS PERSON CLIENT/SERVER SYSTEMS AS

UR TOP PRICETY FOR THE MEXT FIVE YEARS

Base: son IS die

While a true believer, Howell acknowledges the While a true bettever, Howell acknowledges the client/server puzzle is still missing a few pieces. "First, we haven't found anything really useful to predict performance or configuration capacity needs," he says, "Also missing are support tools for everything from network management and control to security and version control. All of these are in their early phases.

As for training and retraining requirements, 'these are higger issues than I'd like," Howell

ese constraints. ITT Hartford has a multiyear phase-in of distributed computing its 40 offices. The goal, Howell says, is to me

nputing power as close to the end user as possible via portable, open systems.

For now, only its Minneapolis office has been cut over to a new citest/server system, which delivers office applications such as electronic mail

\*Maximizing end-user resour-ces. In most corporations today, users work with personal productiv-ity tools such as spreadsheet and word processing software. Take

advantage of users' familiarity with their environments and their ability to access new applications directly from their existing systems and dications, R'll save you money in fonerun

There are tools available that use a spreadsheet model to enable users to, say, generate a report or do a query. Staff won't need to write turnkey plications (think of what you'll ve there), plus it will reduce train ner and confirment costs and object seers a sense of ownership and ac-

udies have shown that neers control and format their own information and determine their own access requirements are at least 50% more productive and about 70% more satisfied with their systems.

\*Taking advantage of flexible

sable seltware dev The move to client/server comp ing is an opportunity to rethink the approach to developing new sys-tems. In the past, companies had to use a comprehensive information flow and systems design to ensure that all elements of a major syste were integrated. Coding these proj ects would take years, and me nance would go on forever.

IS organizations today need to think of client/server system design in terms of flexibility, not detailed phanning of every inch of the system Such flexibility is enabled by stan dards (such as standard progr ing interfaces) and tools (such as let IS staffs integrate and change system elements easily. When all these elements come together new grammers will be able to generate code that is recognizable and reus-able by every other programmer

Cost-cutting, page 178

and group scheduling via NCR Corp.'s Coopera-tion software running on NCR 3000 servers and

frame to SQL Corp. and Oracle Corp. relational databases, run on server platforms from both DEC and Sequent Computer Systems, Inc. Cur-rently, the system is OS/2-based, with plans to move to Unix eventually, perhaps as early as the end of 1963. By that time, the company says, it

expects to have rolled out the system to a dearer The project has been in the works since N

ber 1989. The longest leg thus far has been defin-ing the business requirements the new architecre would meet, Howell says. For the most part, our offices are equipp

with 3270 terminals connected to a bumongon mainframe system," be explains.
"It took a long time to establish where we want ed to go, and it is only now that we are rewrith mainframe-based legacy systems function by function. Our strategy was to start with office automation products to get users comfortable

with the new system," Howell adds.
Previously, office functions were delivered via what Howell describes as the proverbial "islands of technology," primarily local-area network based and stand-alone PC office products. Non users have access to word processing, spread sheet and other office applications via the Coop cration-based system.

Between equipment purchases and software development, Howell estimates the overall cost of the migration will be in excess of \$100 million when It is completed in four to five years.

Cultural changes will occur Case: Harvard Community Health Plan

January 1901 marked a new year and a new sys-tem for Harvard Community Health Plan, one of the nation's largest health maintenance organi-zations (HMO), with 500,000 members, it out over its Burling, Mass., health center from an aging tch-oriented automated medical records system running on a DEC PDP platform client/server

you must be willing to pay for the experience but the rewords are there." - Raymond L. Howell, assistant vice

time and dollars



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The Newspaper of IS

#### In Depth: Client/server

Continued from page 173

don't have to reinvent the wheel with every

#### High return-oninvestment areas

When considering where to insuch a client'server effort, keep in mind the folio ing target applications. They have the advantage of increasing end-user satisfaction, providing a good training ground for new end-user and IS computing skills and starting the move toward a more into

 Decision support and informati-access. I have often run across situatio in which end users are releging data from reports into spreadsheets or local applications. This approach is slow, error-prone and wasteful. There are client/server products on the market that provide end users with access to one or more remote databases. These products not only let you cut

out time-consuming steps but also give you

system. That system is made up of Apple Computer, Inc. Macintosh desktops linked via an Ethernet LAN to a relational data-

Harvard's clinical applications, incli

ing automated appointment scheduling, medical records and systems autoportion

the center's laboratory and pharmacy were the first to be migrated to the new sys-

tem. Eventually, these will interface with a

separate administrative system for mem-

e from The ASK Group, Inc. running on

Continued from page 173

a VA Y sames

a good start at building a data network and ne you make better use of your cristing investment in personal productivity

ent. Many companies have the need to educe the paper shuffle. Creating, editing and routing documents is easy to automate, but it may be complicated when working across groups that have standardized on different editors and

ed processors, differ ent systems, different mail routing and filing rontines and differen data types. Check out products

that let you convert formats, build compound documents and raslize mail routing and filing These types of projects not only reduce eful overbend activity but also put you on the road to an integrated communica-

tions canability move driven by a need to more efficiently provide eliminians and others with current and accurate patient data and to cut costs. Developed by San Francisco-based InterPractice Systems, a joint venture between Harvard and Electronic Data Sys-

tems Corp., the system took three years or about 300 man-bours, to build, according to Scott Belmont. FDS' general manage er at InterPractice Had InterPrestine not underestimated the magnitude of security fusues our rounding socient records as well as certain architectural desire trade-offs, the pro-

cess might have been somewhat shorter in designing the architecture, we for •Interfaces. Too often 1 see IS dep ments rewriting existing applications for the sole purpose of moving them to lower

st platforms. polesnie changes to applicati not be right in all cases. For applie that are working pretty well and have no

he rewritten or for appli cations that are just going As network through a simple platform access heconversion, consider merely putting a fresh face on them. You can do comes more common, use velop cary-to-use front

ends for those applicacosts are harder to predict. Front-ending existing systems with a juzzy screen will bone both de-veloper and user skills in building and us-

> overall end-user satisfaction. Deterred by immature technologies, blin ing backlogs and the costs mentioned, cused on portability so that software could be migrated to other platforms and clients

could be changed out without impacting

Belmont says. "But in doing so, we added

[processing] overhead to the system.

Training also turned out to be a sticky

wicket for interPractice's 100-person

team. "There were pockets of expertise in

advanced architectures and user interface

design at EDS, and we were able to tap

those resources, but the learning curve

was still more than we anticipated," Bel-

which affected performance. This is so

thing we're now working on improving

the database or back-end business code

some IS departments are reticent al the move to client/server. The danger here is that things are not standing still

Users are installing local computing: tions every day, often without regard to rporate standards or the need for inte stion. Without a corporate infrastruc ture actively in place, there is the potential for this ad-hoc approach to impede growth

and assentation id competitiveness. I'd recommend picking projects now that will keep everyone together. You want to focus on projects that are visible enough to get participation but not so critical that you can't handle mistakes. Properly imple sted, these projects can be used to es blish corporate standards, train staff ild partnerships with end users and evolve corporate guidelines for Informa tion access and nor.

ing graphical user interfaces and improve Berg is a program director in midrange compa ing strategies at Gartner Group, Inc. in Stamford, Conn. She is the former group manager of the ellent/server program at Digital Equipment Corp. in Maypard, Mass.

> the system has now been in operation for more than a year and a half, implementation director Donna DeAngelis declined to comment on system costs, saving only that the system represents "a buge financial

> It has also meant a bose "cultural com itment," DeAngelis says, noting that the stem has changed the day-to-day tasks of many Harvard workers. For example, there is no longer a need

for data entry elerks to enter patient infor-mation. DeAngelia says, "The cultural change comes in moving operators to different jobs," abe says. Cases written by Julia Kina, a free lance writer based in Ridley Park, Pa.

At Harvard's Burlington center where

During the next three to four years, Harvard will also migrate its 20 other health centers to the client/server architectore, a The sun never sets over CICS...

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# **Computer Careers**

Trying times indeed for IS staffs

You've just watched the display on your digital clock turn owe another hour. You've been tousing and turning for hours now, and you just can kfall

asieep no matter how many sheep you count. What's the problem here? It could be something you ate, but it's more likely you're just feeling the effects of today's stressful information sys

Meeting tight dendlines, keeping up with technology, juggling varied tasks and solving complex technical problems are among the litany of responsibilities that IS professionals say have them grawing at their cutiries and leaing sleen

"A project that used to have four peosie suddenly has three," says Stanley Stables, computer systems analyst at the administrative office of the Illinois Court in Springfield, Ill. "Suddenly, yon've got 33% more work to do in the same time

No place like home Debbie Bolk knows that feeling A senior pro-

Veu're having trou-ble solving problems. Veu're snapping at co-workers. grammer analyst at Southwestern Public Service Co. in Amarillo, Texas, Bolk is starting to forget what home looks like. Cutbacks have almost halved Southwestern's IS staff during the ✓ You have past two years, she says, and when 16 people try to do the work of 30, days get very long. no energy -Overtime is a given — on occasion, Bolk has had to put in a 24-hour stint. Overall, morale is left for your

OR. But says in a row, they begin to get testy.

The company has tried to help by forcing all employees to take a lunch break and two 15-minute breaks every day. But the work environment

Certainly

"I worry about the tools I have to work with," asys Richard Holub, systems administrator at arch, Inc., a commercial printer fulfillment and lemarketer in Benton Harbor, Mich. Holub says rvices for users if only he had SQL took, fourth-secration languages and application genera-rs available to him. He's also concerned that his tack of experience with these products will

hold his career back if he decides to move on to Customers are also adding to the pres-sures on IS by demanding faster service. Holah says this pressure "bleeds into off-hours," when he finds himself worrying

about whether or not he'll be able to

turn stressful in the current pres-

surized citinate.

Greg Atwood, a systems analyst at Red Llop inns and liotels in Mancouver.

British Columbia, says he's noticed that it is harder these days to sort through development requirements. Things are just a little too heetic for higher legic to function properly. "At work,

you are doing so many things at once, it's di to solve some problems," Atwood says. His solution: Take the problems with him. "The best time for me to solve these problems is when I

Bredix is a free-lance writer based in New York

readure that 104 17 045

are her only chance to eatch up on research and reading. "It's hard to find time to read all of the magazines and newspapers that come across my desk, not to mention learning new software and

Keeping up with technology is also a concern for IS professionals whose companies can't af-

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### Database administrators: Super stress handlers

By Leslie Goff

If you're a gluttee for work with a high telerance for stress and an interest in avoiding the limelight, per-haps database administration is a

Database administrators are the susung heroes of information systems, says Marilyn Cumberland. manager of the data administration/computer center at COMSAT Corp. in Washington, D.C. "We're sort of the engine that runs everything," she says. However, tike most cagines, they seldom get much at-

ntion until things go wrong. is critical for the smooth operation of an enterprise. They manage the physical and logical aspects of the database and work with systems analvets to create tables and indexes that let week necess data. They also maintain the tables, back up and re-cover the data, monitor direct-access storage device sec, trosble shoot and help the systems staff fine-tuoe the operating system They are the keepers of the data says Denn Flanoigan, database ad

ministrator at Quality Stores, inc. in North Muskegon, Mich. The demand for database admin intrators is good as are job security and growth potential Database

technology will likely continue to be an IS centerpiece, so those who can keep up with technology changes will stways be able to find a job. Saiaries are a plus as well, ranging from \$35,000 to \$65,000, depending

"It could be a springboard into upper management because you tend to see the bir picture and deal with so many other users," says Mike Ewanowski, database admin-istrator at the Data Resource Management Group, Technical Services.

at Emory University in Atlanta. Management potential in a small shop, database admis trators can become prime candidates for apper IS management. Por instance, at the Parific Maritime Asiatioo, an arm of the internation al Longsboreman's and Ware-houseman's Union based in San Francisco, Jose Martinez leveraged his database experience tu become assistant director of IS, with overall responsibility for applications deopment, systems software and

"In a small organization, you tend to have people who are knowledge-sable in a variety of areas," Martinez says. "You have to wear different hats, do different functions, as well as deal with end-user problems. The

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EXECUTE: Three to five years in program ming, systems analy-sis. Database analysis

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organization.
"You're always in on the big pic-ture," Cumberland says. "There's always something new and always a different challenge. You have a new set of problems with every sys-tem you design, and you have to be

to database administration to set-Unfortunately, many of these acrities are transpe reat to business seers and managers. They see the

dications but don't spend much op the database at feeds them in Job provides ood repair. But that could be

technical challenge and a changing as DB2 shops implement out application bird's-eve view intoan organization. es that bring

Pressure is high intense pressure on the job in the Corp. shop runoing a hierarchical database, Wollenberg looks for reost common complaint among da-base administrators: keeping up

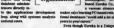
lational experience when hiring.

A bachelor's degree in computer science or IS is usually required, although Wolfenberg says he doesn't problems as soon as they occur believe one is necessary. "I'm h ing for a tech-head," he says. serving as a jack-of-all-trades and being constantly or call.

Therein lies the job's appeal: it offers constant technical challenges
as well as a bird's-eye view into the

ask a lot of technical questions Ewanowski says a business de-gree is also a good start because it provides background into bus functions and how an organiz is run, and Flannigan recount "any kind of course or curric that focuses on problem-sc ability from math to philosophy





Godf is a free-lance writer in New York

Most database a.'ministration managers say they are looking for a

experience in programming and systems analysis. A stint as a data-

systems software is a plus, as is expe-

rience with a rela-tional database or

the mainframe or

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base analyst, a more tank-orien

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"Because of our expertise in leading-edge technologies, our clients look to us as man-agement consultants rather than simply reogement consultants rother than simply re-cruiters. So it's crucial that we facus on se-nior-level CASE tool and methodology pro-fessionals with strong I/S backgrounds. Our clients, including farture SOO companies, CASE tool vendors, and large consulting firms, typically have requirements for in motion engineers, senior consultants, data, motion engineers, senior consultants, data, modelers, and I/S planners. Our recruitment advertising in Computerworld has positioned us as America's leading CASE recruitment ing firm

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"In addition to generating resumes that closely match job specifications, we also get other valuable benefits from our Com-

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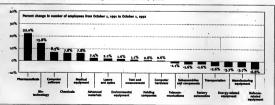


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Of the 4,096 technology manufacturers surveyed by CorpTech during the past three months, 22% expanded their work force while 17% experienced either shrinking employee counts or business failure. The remaining firms indicated stable employment.



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# **Marketplace**

## Tips from three tough software testers

No one can afford to install a software package that contains even one time bomb or boo by trup. Yet the

s of doing so are higher as the market is deluged with untried Microsoft Corp. Windows pro-While your software evaluators

may been feeting methods that work, it can't burt for them to take stock of other procedures as PCbased systems take on more respon-

Read on to find out how three lough lesters approach software

#### Getting started

Dave Grana, a planning assistant and a power user at Chevron USA Products Co. in Houston, begins with the documentation if it is a brand-new product. "It's not as bad as the early days of Windows, but you have to be careful if it's the ven dor's first Windows program," he says. (For updates to proven prod ucts, be just loads the new version and lets it run.) Early Windows ap olications sometimes didn't boot up at all looked up the mouse or

crashed the entire system Just to be on the safe side, howev-

backup of his system before install ing the new software. He also check to see if the application creates its own WIN.INI files, as opposed to ap-

pending existing files, making it ensier to troubleshoot and deinstall the software.

Steven Birgfeld, manager of com-puting standards and support at Booz Allen & Hamilton, Inc. in McLean, Va., also begins by looking at the documentation. With pro-

grams he considers volatile, he creates a special directory and does a system backup. On the opposite end, Joel Dia cond, technical director of the Win down Users Group Network in Me-

dia, Pa., skips the documentation and goes right to the install proce-dures. He looks at embedded held files, tutorials and, especially, any README files. The reason: Some developers put more information than just how-to explanations in the Help filer be room

To make it easy to extricate his system from any problem, Diamond uses tools developed by the Win-dows Users Group Network that save existing configuration files to

Once assured that the software can be installed and deinstalled without a major crisis, the evaluators start

Diamond is very concerned with how well the developer imple ed the Windows interface. He reviews the screens, menus and messages to identify the features and eastomization options. He also examines the program's consumption of resources, particularly disk and memory use, and he times the mini-

"I want to know bow much disk "I want to know how much disk space the program requires. That is not something the vemdor reveals on the box," Diamond says. The vendor states a minnum configuration for running the program, which may not allow for adequate perfor-

ures against a list of require ments drawn up by the end users He scores the application for its must-bave and would-be-size features. He also exercises the data im-

port/export capabilities. When problems arise, Grana turns to utilities such as Windows Dr. Watson and Norton Utilities (a. set of PC management tools) to iden-tify the problem and make corrections. "Say the program suddenly locks up. If I'm locky, I can stay in Windows 3.1 and get over to Wat-son." Dr. Watson files record everything that happens to the system

and are used in determining what

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nation. Also, bac

Benchmark the appli-cation is terms of hard were performance. You may also consider not doing a full install. Sample files, for ex

When doing compati-bility testing, be sure to test the right version level. The only way to determine if a package contains the Intest fix is

In addition, he will try to save a close whatever open files he can. He

uses Norton Utilities to try to reconstruct damaged files.

When they can't solve a problem, the evaluators don't hesitate to call the weador's technical support line

Compatibility testing is the final step in the evaluation process. The goal is to determine bow the software works with the asers' likely hardware and software combina-tions. Fortunately, most software now is network-friendly. "There is no way to test every compati concern." Birgfeld warns, "make sure you are testing the righ version level." Vendors may releas unaneounced or unnumb unanounced or imnumbered re-leases of software containing a mi-nor fix that changes the compatibil-ity picture. The only way to determine in advance if a puckage contains the latest fix is to check for a dute on the box or disks.

Evaluators rarely encounter a truly awful program anymore. "The worst thing is a program that just isn't easy to use," Birgfeld says.

Still, there is always the possil ty of an unpleasant surprise in the next box that arrives on the soft-ware evaluator's desk. "In a market that moves as fast as the Windows market," Diamond says, "you're sure to find some lead bulloons."

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T	Sharp Corp.
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K	Silicon Graphics, Inc.
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	Sprint Corp. 10,16
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#### Gainers Losers

Percent 95.56 95.60 96.00 44.82 N.M. N.M. 22.71 22.66 Dollar

975 376 376 377 377 186

#### IPOs roll on

Unaffected by a marketwide summer slump in initial public offerings (IPO), computer-related stock offerings continued analysised through the third quarter.

The dollar volume of IPOs in all industries declined by 55% in the third quarter, according to market analysis firm Som-

The Solid relative of PVA is not inharactive sectioned by Nor-ley Solid relative of PVA is not inharactive sectioned by Nor-mary & Assessment, the Computer industry personnel all Erect collections. The number is down to Nova in PVA is no the excel-cion of the Normal Computer industry them be also greatly con-cerned to the Normal Computer industry. The Normal Computer is Sommers, provided of the Normal Computer in Normal Computer is Sommers, provided of the Normal Computer in Normal Computer is Sommers, provided of the Normal Computer in Normal Computer is not Sommers, provided provided in Normal Computer is not not not compute in Normal Computer in Normal Computer is not not computer in Normal Computer in Normal Computer in Normal Computer in Normal Source Rev. (see provident of also the confirmation of a country of Source Rev. (see provident of also the confirmation of the Normal Computer in Normal Source Rev. (see provident of also the confirmation of the Normal Computer in Normal

Many of the high-tech companies that have gone public in 1992 have seen an increase in their stock price. Selected issues with their initial and current share values:

Company (products)	100	tribbel price	Correct price (ss/so close)
State Electronics (data compression)	MAY	12	4%
Hedrome Systems, Inc. (Felwork servers)	tone :	9	15
Creative Technologies Ltd. (multimedia products)	Aus.	12	191/2
Barryon Systems, Inc. (networking software)	AUG.	20%	201/2
Computervision Corp. (CAD software)	Aus.	12	6%
Metris Corp. (telecommunications produces)	Sept.	12	17 %

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Exce	12 West	Resco		Row 13 Tree	de fil	the PCT
	MAN, NO.		AND HE TWORK MAYKES		49.1	14%
200						
900						
90%	49.75	40.25				
90%	55.50					
40%	6.75	3.65	BOLL BORGER & HUMBAR			2.56
400	73.25		CARITYCOSOCIEMENT			
	31 60					
910	70.25	24 90	CriscoSystems lac. 240			
	35.25	3 50	Coursessons as lar.			
dec	3.34	5 90	Oare Sentre Com	2.25	0.15	
WYS.	22.63	13.75	District Come Asset			
OIL	15.75	7.50		1275	4.38	55.55
210		1.07				
	10.88	4.75	FIRSTONIATION	5.75		8 90
310	7.50		Facecy Comp Company Toyon County Inc.	26.75	22	27.44
O1C	12	0.40				14.22
1075	10		CONTRACTORNAMICATIONS COMMENTS ENTERCOMMENTS	1 19	9.13	9.52
456	5.90	0.94	En years Entercome sept.	2.04	E-13	2.70
		25.58	S/S Cope	13.03	6.44	0.51
			ITTCom	68.00	1.75	244
010	12.41	35.75	MC Communications Comm	18.00	1.75	2.86
gtt	19.75	2.25	McCommunications Communication	14.00	432	
			Michigan Concessor Tree	10.15	6.18	-1250
	75 50		NY TWO DE CONTACT	14.63	6.75	4.77
					6.50	1.77
			NUMBER STREET, COM.	29 00	0.50	140
			Special se facilitation	72 13	8 36	8.97
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				10.11	2.15	253
				13.75	3.17	17.20
			Socretarization Com-	13 /5 64 FE	0.06	97.70
				22	0.13	3.45
				21.00	0.78	1.62

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# **Computer Industry**

# Brief

section in the strong show-g. Claco Systems, Inc. last eck posted first-quarter ruings of \$33.2 million, an crease of 116% from the r-earlier period, Reven

g Laboratories, inc. evenue for the first ter of fiscal 1960, which quarter of faceal 1965, water ended Sept. 30, was roughly \$350 million, a decrease of 22% from the comparable pe-riod lastyear. The Chapter 11-bound Lowell, Mass., compa-

#### Zeos names COO

os international Ltd., ningoffe string of finan rial reversals, has named Martyn Ratcliffe as president and chief operating officer. He succoeds founder Gregory E. coords founder Gregory a strick, who remains as airman and chief executiv ficer. Rateliffe joins the St. snl, Minn., PC maker after These at

ld in 1990 Contr

# HDS eyes change

New CEO re-evaluates product mix, strategy in competitive PCM market

By Jean S Borman

Hitachi Data Systems Corp.'s (HDS) management style and focus may not change appreciably under new Chief Executive Offi-

cer John D. Staedke. but the company's product strategy probably will. out new product op-

portunities, although be said be intends to stick it out in the highly competitive IBM plugatible mainfra (PCM) business. His plus Include diamos the PCM business tic software and me-

port for Unix systems software. which is proliferation as users turn to client/server systems. "It's clear to us that there will be a significantly more rapid growth curve in the open systems area than in the industry-standard area," Staedke said, referring to IBM-com-

patible systems. But HDS' project to put the Opeo Software Foundation's OSF/1 onto mainframes has oot good as quickly as predicted, he said. HDS has not chosen to support it or IBM's AEX yet. "We have never provided any operating system software before," Staedke noted. "It's an option, but

we have made no ann Product shift? Standke, who recen

Gary B. Moore - HDS' CEO since the firm's inception as a joint ven-ture between Hitnehi Ltd. in Japan and Electronic Data Systems Corp. in 1989 — is also looking at shift the company's product mix. Until recently, HDS got 60% of its revenue from sales of its disk drives and peripherals and 40% from proce sales. Now that ratio is 55% periph erals and 45% processors. Staedke told Computerworld the goal is u

50/50 mix. Abetting this plan, Staedke said, is the projected increase in high-end mainframe sales, which is tied largely to big corporations' contino ing data center consolidation

Staedke does have one luxury: HDS can afford to stick to its longterm plans without pressure from

pectations. Because it is privately owned, HDS does not have to report its financial results every 90 days and can harbor resources for future

> In addition, corpo-rate parent Hissehi Ltd., which owns 80% of HDS, has the deep pockets and forwardthinking corporate cui ture occided to suppor extensive product de-velopment and fine-

Staedke, who joined HDS a year ago as ex-centive vice president of marketing from EDS where he led strategie

er, analysts said. He played a role in HDS' roughly 15% annual growth, even as competitors Amdahi Corp. and IBM stem erosion of their cus-tomer base with heavy discounts. "HDS stayed focused on servicing

beats their competitors, and their lines up with the reliability surveys we get," said Curt Bray, an informa-tion systems technical specialist at Sprint Corp. to Westwood, Kan, whose organization bought 22T bytes of HDS peripherals during u recent data center consolidation. Sprint also owns several HDS main

his tenure as HDS CEO to be remarkably different from Moore's Moore returned to EDS last month as chairman and group executive of

# As the number of main installed begins to slip U.S. installed base U.S. IRM PCR HURSTown.

Peter Burris, director of commercia systems research at International bysical research at International Data Corp. in Framingham, Mass. "They've gotten pretty good at en-suring that their products behave and perform as advertised. And, they're oot doing a lot of ancillary

and paying attention to mainte-nance issues, Staedke said. The firm's customers often agree. What we've seen over the years is that their disk drive reli

"We are going to cootinoe to dance with the ones that brought us here," he said, referring to Hitachi and EDS. "We're in the PCM business, and we're going to stay

He did not deay the value of having EDS as a backer. "Yes, they are a good customer," Standle said. "But because of the size of their appetite [for equipment], all three primary ns] believe EDS is a very good



Ore.) in a bid for the

Space Subcom

### Trends Network management update

# Staffing the network management effort

33% Strongly agree

27% Somewhat agree

27% Somewhat disagree 13% Strongly disagree

Personnel costs

47% of IS managers feel perso

costs for network management are a major concern. 42% say they are a minor concern. 11% are not

concerned at all.

How will this change in two years?

work downtime Has your company estimated the cost of 74% have not. 14% have and 12% do not know.





SEING JOHN SCULLEY AND TONY BENNETT AT 10:00, AND WORL WITH WAYNE NEWTON AT 2:00, BUT I'M SKIPPING WORKSTATION SEMINAR AT 4:00 SO I CAN CATCH THE ELVIS IMPERSONATORS AT 5:00."

#### Inside Lines

#### Merry Christmas

DEC's layoffs quietly continue, according to internal sources. At least several thousand employees will have received pink slips by the second week in December. Total head-count reduction could amount to more than 10,000 daring the second liseal quarter, one source esti-mated. During the first fiscal quarter, which ended Oct. 1, 5,300 em-physees left the company. Disclosure of the outbacks could coincide with the announcement of DEC's rebuilt business structure and additional management changes Meanwhile, negotiations almed at landing a U.S. sales vice president from outside the company — one with actual sales experience — may be made public this month

#### My enemy, my vendor

Dealers are upset with IBM for its ValuePoint pricing, "ValuePoint came without a suggested retail price, and then IBM quoted prices through the direct number, which de facto became the MSRP. Those prices they quoted were significantly lower margin than anything prices they quoted were significantly lower margin than anything we've ever portfrom IBM in the past, and to make matters were. [IBM] stated that deuters would sell probably 5% to 10% less than that— that's unconscionable. Tumed Matt Fitzsimmons, a Computer Land deuter in While Falins, NY. "At 10% better thus what they're dofter. I bearer in wante rauns, N.L. At 10% setter than what they re-doing, it lose mooey after f pay royalties. If this is the new IBM, they better get themselves under control." An inacom spokesman concurred: "IBM secure under control. An inacous apocessinan concurred. Both set their direct pricing in such a way that dealers have to set a pretty aggressive price just to match that price." Self, dealers want Value-Point because they can talk to customers who left them years ago Point because they can man because of IBM's high pricing.

Users aren't the only ones frustrated by the inability of the major players to agree on common formats. Last week, Microsoft Senior Vice President Pete Higgins lamented on the same day that his company and Apple unveiled competing methodologies allowing Apple's QuickTime multimedia technology to run on Windows machines. There are a lot of needless differences between the two file formats. Higgins said at the MactS user group meeting in New Orleans, could and should work together to make it ensier for the users.

#### Singing from the same score

Microsoft, meanwhile, should release core code versions of its Fox-Pro, Word and Mail applications in 1983. Core code versions allow the near simultaneous release of Macintosh and Windows variants of the same application. Microsoft already has core code overlap on its Excel, Project and PowerPoint packages.

#### Go East, woman!

She probably won't be marching in next week's famed Thanksgiving Day parade, but Macy's new CiO plans to relocate from San Francisco to New York soon. Rached Graham recently took over top technology duties, replacing Leonard Beliezza, who left the company in mid-O-tober. Officials declined to comment on the shuffle, which comes just so the hankrupt retailer fluished a super-automated inventory conso the sankrupt retainer immores a super-automated inventory con-trol system designed to give Macy's huyers a better handle on what sells, what doesn't and what, if anything, can pull the world's largest departments tore out of Chapter 11.

#### From Apple to cherry trees

John Sculley's name has been runnered for a position in the Clinton administration since the Apple exce bendlined a group of pro-Clinton Stillion Mally occurrence age. Sculley has sold his lossue in Cultiornia and purchased a retreat in Millord. Conn., or weekends of from the rights of being Secretary of Commerce.

You would think a PC maker would be immune from this som how: A Northgate rep, coming ground to show off the company's new notebooks to members of the press, left them under his dashboard in the front seat of the ear when he made a quick stop at a Boston-area matt. A thirt broke into the ear, stole the notebooks und also made off with the rep's briefcase, which had all his press kits. The thief did not take the expansion station, which was out of sight in the trunk Phone, fax or CompuServe News Editor Alan Alper with news tips (or notebook bandits) at (800) 343-6474, (508) 875-8931 or 76537, 2413, respectively. Or try Computer world's 24-hour roler-mail tip time at (50%) 829-8556.

# Informix Database Technology Helps World Vision Reach The Children.



When World Vision, a non-profit international Christian relief and development agency, needed to manage \$225 million annually in fundraising and distribution, they turned to us, Informix, the experts in UNIX\* relational database

management systems.

Mainframe-Caliber Performance

World Vision required a UNIX system that could deliver mainframe caliber performance at a fraction of the coar. The years had to provide calies response to a large number of simultaneous users. It had to provide on-line access to donor data, including correlation of donors and recipients. And it had to be easily modified for special projects, such as energency relief.

World Vision chose Informix's UNIX solution

One Million in Donor Database.

All of World Vision's needs are being met—including storing 10 million clonation positing, maintaining a donor database of more than a million posple miking data swalable around the clock/seven days a week, and provising application portability, networked capabilities, and hardware independence.
World Vision and thousands of other organizations have called on us for

12 years to successfully handle their critical data.

If you're considering UNIX for data management, talk to Informix.

Because we're the experts.

MINFORMIX"

